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# Psychiatric Mental Health Nurse Practitioner Workforce Development in Behavioral Healthcare Settings in Rural Mississippi

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The University of Southern Mississippi

# PSYCHIATRIC MENTAL HEALTH NURSE PRACTITIONER WORKFORCE DEVELOPMENT IN BEHAVIORAL HEALTHCARE SETTINGS IN RURAL MISSISSIPPI

by

Arlen Davis Cooper

Abstract of a Capstone Project
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Nursing Practice

December 2014

ABSTRACT

PSYCHIATRIC MENTAL HEALTH NURSE PRACTITIONER

WORKFORCE DEVELOPMENT IN BEHAVIORAL

HEALTHCARE SETTINGS IN

RURAL MISSISSIPPI

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*Description and Significance of the Problem:* The United States is facing a significant rural mental healthcare workforce shortage and an uneven distribution of mental healthcare professionals. The psychiatric mental health nurse practitioner (PMHNP) may increase access to mental healthcare in rural underserved regions (NRHA, 2012). However, little is known regarding their distribution. The lack of uniform and consistent data collection methods regarding the number and the geographic distribution of PMHNPs in rural areas, specifically in rural Mississippi, exists. The importance of better data collection and improving infrastructure through collaboration with state licensing boards and state nursing workforce centers is one of eight recommendations the Institute of Medicine (IOM, 2011) and the Robert Wood Johnson Foundation (RWJF) identified as a factor that impacts the future of nursing.

*Purpose:* (1) To determine the number of PMHNPs licensed and employed and (2) to project the need for PMHNP workforce development in the state of Mississippi.

*Methods:* A secondary workforce analysis of existing data from nursing workforce center surveys and the board of nursing database conducted.

*Evaluation:* The supply of PMHNPs licensed and employed in the state was measured by number per 100,000 in each public health district population and minimum dataset supply variables. Findings included that there is a range of 3 to 10 licensed PMHNPs employed per 100,000 populations in the nine public health districts of the state of Mississippi dispersed unevenly. The majority of PMHNPs fell in the age bracket of 45-54, were employed full-time, and held a Master's degree in nursing as the highest educational level obtained. Minimum dataset demand variables were used to measure projection of PMHNP workforce development. Limited response to the hospital survey and limited accessibility to organizational data impeded valid or reliable results.

*Outcome:* A lack of PMHNPs in a predominantly rural state exists and confirms an aging workforce. The results of this intervention will provide evidence to influence and shape healthcare policy and provide funding for education, training, and recruitment of the PMHNP in rural Mississippi.

The University of Southern Mississippi

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Approved:

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December 2014

# DEDICATION

I would like to thank my children, Corey, Chad, and Cortni, and my beautiful granddaughter, Caileigh, who were always an inspiration in my pursuit of education, my love, and respect for giving unconditional love while granting undying support through this endeavor. I would like to extend a special thanks of love and gratitude to my "honey", Carl, who has given perpetual love, encouragement, and understanding.

This capstone project is dedicated to my entire family who were a driving force that contributed to my professional growth.

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I express sincere appreciation to Dr. Anita Boykins who has patiently encouraged, and supported me through the completion of this endeavor. I extend a special thanks to Dr. Lynn Langley, and Ms. Wanda Jones for their support and numerous volunteer hours of data collection, and to my statistician, Ms. Bethaney Miller for "making sense" of data analysis and enduring much patience with me.

A warm thanks of appreciation is extended to the Jonas Center for Nursing Excellence and the American Association Colleges of Nursing Jonas Nursing Leadership Scholarly Program for a rewarding and dynamic opportunity of nursing leadership and professional growth.

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LIST OF ABBREVIATIONS

| | |
|---|---|
| *AACN* | American Association of Colleges of Nursing |
| *AACCN* | American Association of Critical Care Nursing |
| *AAPA* | American Academy of Physician Assistants |
| *AANP* | American Academy of Nurse Practitioners |
| *AECF* | Annie E. Casey Foundation |
| *AHEC* | Area Health Education Center |
| *AHRQ* | Agency for Healthcare Research and Quality |
| *ANA* | American Nurses Association |
| *ANCC* | American Nurses Credentialing Center |
| *APNA* | Association of Psychiatric Nurse Practitioners |
| *APRN* | Advanced Practice Registered Nurses |
| *BPC* | Bipartisan Policy Center |
| *CBPP* | Center on Budget and Policy Priorities |
| *CCNA* | Center to Champion Nursing in America |
| *CEO* | Chief Executive Officer |
| *CMHC* | Community Mental Health Center |
| *CMS* | Centers for Medicare and Medicaid Services |
| *CNM* | Certified Nurse Midwife |
| *CNP* | Certified Nurse Practitioner |
| *CNS* | Certified Nurse Specialist |
| *CPS* | Center for Population Studies |
| *CRNA* | Certified Registered Nurse Anesthetist |

| | |
|---|---|
| *DNP* | Doctor of Nursing Practice |
| *FPL* | Federal Poverty Level |
| *FSNWC* | Forum of State Nursing Workforce Centers |
| *FTE* | Full-time Equivalent |
| *GIS* | Geographic Information Science |
| *HIAGP* | Hospital Inpatient Adult or General Psychiatric |
| *HIGP* | Hospital Inpatient Geriatric Psychiatric |
| *HISP* | Hospital Inpatient Substance Abuse |
| *HPB* | Health Policy Brief |
| *HPSA* | Health Professional Shortage Area |
| *HRSA* | Health Resources and Service Administration |
| *IRB* | Institutional Review Board |
| *IOM* | Institute of Medicine |
| *ISPN* | International Society of Psychiatric-Mental Health Nurses |
| *KFF* | Kaiser Family Foundation |
| *MCDDSN* | Mississippi Council of Deans and Directors of Schools of Nursing |
| *MDES* | Mississippi Department of Employment Security |
| *MHA* | Mississippi Hospital Association |
| *MNA* | Mississippi Nurses Association |
| *MONW* | Mississippi Office of Nursing Workforce |
| *MSBN* | Mississippi State Board of Nursing |
| *MSBOML* | Mississippi State Board of Medical Licensure |

| | |
|---|---|
| *MSDH* | Mississippi State Department of Health |
| *MSDMH* | Mississippi State Department of Mental Health |
| *NAMI* | National Alliance on Mental Illness |
| *NCSBN* | National Council of State Boards of Nursing |
| *NFSNWC* | National Forum of State Nursing Workforce Centers |
| *NGA* | National Governors Association |
| *NIMH* | National Institute of Mental Health |
| *NLN* | National League for Nurses |
| *NOLC* | Nursing Organization Liaison Committee |
| *NP* | Nurse Practitioner |
| *NPI* | National Provider Identifier |
| *NRHA* | National Rural Health Association |
| *NSSRN* | National Sample Survey of Registered Nurses |
| *PHDE* | Public Health District of Employment |
| *PHDR* | Public Health District of Residence |
| *PPACA* | Patient Protection and Affordable Care Act |
| *PFSP* | Private Free Standing Psychiatric |
| *PMHNP* | Psychiatric and Mental Health Nurse Practitioner |
| *PRTF* | Psychiatric Residential Treatment Facility |
| *RAC* | Rural Assistance Center |
| *RUCA* | Rural Urban Commuting Area |
| *RWJF* | Robert Wood Johnson Foundation |
| *SFIP* | State Funded Inpatient Psychiatric |

| | |
|---|---|
| *SAMHSA* | Substance Abuse and Mental Health Services Administration |
| *SPPS* | Statistical Package for the Social Sciences |
| *USBLS* | United States Bureau of Labor Statistics |
| *USDA* | United States Department of Agriculture |
| *USDC* | United States Department of Commerce |
| *USDHHS* | United States Department of Health and Human Resources |
| *USGPO* | United States Government Printing Office |

# CHAPTER I

## INTRODUCTION

Evidence indicates that a significant primary healthcare workforce shortage exists in rural America (American Association of Colleges of Nursing [AACN], 2013b; Carrier, Yee, & Stark, 2011; Gamm, Stone, & Pittman, 2010; National Rural Health Association [NRHA], 2008, 2012). In addition to the workforce shortage, uneven distribution of healthcare professionals is another prevalent barrier that impedes access to primary healthcare for rural Americans. An aging workforce and inadequate growth of the healthcare professional supply contribute to the workforce shortage and uneven distribution (AACN, 2013b; NRHA, 2012). Currently, a lack of reliable health care professional workforce data exists. Data collection systems are fragmented, while available sources of data are limited, inconsistent, and incomparable (Bipartisan Policy Center [BPC], 2013). Therefore, improvement in data collection methods is essential in order to address current and future primary healthcare workforce shortages (Hanrahan & Hartley, 2008; IOM, 2011; Kaplan, Skillman, Fordyce, McMenamin, & Doescher, 2012; Thomas, Ellis, Konrad, Holzer, & Morrissey, 2009).

In order to curtail current and future primary healthcare professional workforce shortages, Advanced Practice Registered Nurses (APRNs) should be utilized to the full scope of their education and training (IOM, 2011). Evidence indicates comparable clinical outcomes in the quality of care provided by physicians and APRNs and equal or higher ratings of patient satisfaction (Health Policy Briefs [HPB], 2012; National Governors Association [NGA], 2012; Stanik-Hutt et al., 2013). Even more, a shortage of behavioral health care professionals also exists in the United States (Ellis, Konrad, Thomas, & Morrissey, 2009; Gamm et al., 2010; IOM, 2011; Thomas et al., 2009) and in

rural areas such as the state of Mississippi (Substance Abuse and Mental Health Services Administration's [SAMHSA], 2012). Little is known regarding the workforce distribution of the APRN, psychiatric and mental health nurse practitioner (PMHNP) in rural behavioral health care settings. The importance of better data collection and improving infrastructure through collaboration with state licensing boards and state nursing workforce centers is one of eight recommendations that The Institute of Medicine and The Robert Wood Johnson Foundation (RWJF) identified as a factor that impacts the future of nursing (IOM, 2011). Knowledge of the number of PMHNPs and information on practice settings where PMHNPs are employed in the state of Mississippi are essential to influence and shape healthcare policy and provide funding for education, training, recruitment, and retention of PMHNPs in rural Mississippi behavioral health care settings. The aim of this doctoral capstone project is to examine how improving workforce data collection projects PMHNP workforce development, ultimately influencing and shaping health care policy and improving access to mental health care services in rural mental health care settings in the state of Mississippi.

## Background and Significance

In 2010, President Obama signed the comprehensive health legislation, the Patient Protection and Affordable Care Act (PPACA) into law inciting an evolution in healthcare. The PPACA exemplifies the greatest overhaul in health care placing greater emphasis on expanding coverage, regulating costs, and improving how health care is delivered (American Nurses Association [ANA], 2012; IOM, 2011; Kaiser Family Foundation [KFF], 2013; U. S. Government Printing Office [USGPO], 2010). The Institute of Medicine (IOM, 2011) states that the implementation of the Patient Protection

and Affordable Care Act (PPACA) will provide access to primary health care to an additional 32 million uninsured Americans, impacting the shortage even further. Medicaid expansion is one aspect of the PPACA that will improve access to primary healthcare. The PPACA establishes a national Medicaid eligibility level of 133% of the federal poverty level (FPL) for approximately all Americans 65 and younger, including children, parents, pregnant women, and adults without dependent children, which encompasses individuals with psychiatric diagnoses and individuals that live in poverty in rural settings (Angeles, Gonzales, & Kone, 2012; KFF, 2013; Medicaid.gov, 2014). Medicaid is an essential source of funding particularly for children and adults with psychiatric disorders which are typically not covered by private insurance. Medicaid expansion would enable individuals to acquire mental health services before their symptoms worsen exposing them to potentially tragic outcomes (National Alliance on Mental Illness [NAMI], 2013).

Approximately 62 million Americans constitute the rural population and are more apt to proclaim average to poor health and tend to be poorer than the urban population (NRHA, 2012). According to the U. S. Department of Agriculture (USDA, 2013) Economic Research Service, the average per-capita income for Mississippi residents was $32,000 while rural per-capita income was $29,574. The 2011 estimates indicated a poverty rate of 25.6 existed in rural Mississippi, compared to 19.4% in the urban area (USDA, 2013). In Mississippi alone, approximately 300,000 uninsured Americans would be eligible for Medicaid. Enrollment in Mississippi is expected to increase by nearly 60,000 even without Medicaid expansion due to other aspects of the PPACA (Center on Budget and Policy Priorities [CBPP], 2012). Subsequently, the increase in insured

Americans will require additional primary care professionals to meet the health care needs of rural populations (U. S.) Department of Health and Human Resources, [USDHHS], 2012).

The PPACA will not only provide accessible health care to millions of poor Americans but will also invest in the training, recruitment, and retention of primary healthcare professionals. Funding provided by the PPAPC will (1) support community health centers, (2) train new medical residents, nurse practitioners, and physician assistants, (3) support the training of mental health professionals, and (4) expand training of the APRN in community-based settings (USDHHS, 2012). According to the Health Resources and Services Administration (USDHHS, 2014), mental health professionals encompass PMHNPs, psychiatrists, clinical psychologists, clinical social workers, and marriage and family therapists. In addition to the psychiatrist, the other behavioral health professional that can assess, diagnose, and provide pharmacotherapy and psychotherapy to individuals with a psychiatric diagnosis is the PMHNP.

Furthermore, on average only 9-11% of physicians practice in rural areas. Consequently, out of the 20% of the United States population that is rural, nearly three-fourths of the rural counties lack a psychiatrist, and roughly one-third of rural populations lack any type of health professional to provide mental health care services (Gamm et al., 2010; NRHA, 2008, 2012). In 2009, evidence showed that in the United States, 77% of the counties depicted a shortage of behavioral health care professionals with greater than 50% of their need unmet. Approximately each county (96%), specifically lacked a psychiatrist or a PMHNP (Thomas et al., 2009). The Substance Abuse and Mental Health Services Administration's (SAMHSA, 2012) latest data indicated that in 2009

there were 11.0 psychiatrists per 100,000 population (33,727) in the United States. In comparison, there were 6.0 psychiatrists per 100,000 population (176) in the state of Mississippi, the lowest number in the country (SAMHSA, 2012). The latest data provided by SAMHSA in 2008 regarding the PMHNP indicate that in the United States, there were 4.5 PMHNPs per 100,000 (13,701) while there were 6.9 per 100,000 (204) in the state of Mississippi.

The U.S. Census Bureau indicated that in 2012 the population in Mississippi was over 2.9 million (U. S. Department of Commerce [USDC], 2013). In Mississippi, 2.1 million residents live in the 40 mental health, health professional shortage areas (HPSAs), and over 1.1 million are underserved (Area Health Education Center [AHEC], 2013). According to the Mississippi State Board of Medical Licensure (MSBOML, 2012), during the fiscal year of 2012, there were only 255 licensed psychiatrists in the state and 48 out of 82 counties in the state of Mississippi lacked a psychiatrist; therefore, the state of Mississippi is facing a primary behavioral healthcare workforce shortage.

Rural county populations range from 2,500 to 20,000 (NRHA, 2012) and according to Health Resources and Service Administration (HRSA), an area is designated to be a mental health HPSA when there are 30,000 or more people per psychiatrist (USDHHS, 2013a). Currently, 3,700 mental health HPSAs exist in the nation (USDHHS, 2013a), while 40 are designated in the state of Mississippi (AHEC, 2013). More importantly, in 2014, with the implementation of the PPACA, 62.5 million Americans will become eligible for mental healthcare benefits. Subsequently, an 18% to 21% decrease is anticipated in the supply of psychiatrists and PMHNPs in 2014 (Pearlman, 2013).

Evidence shows that psychiatric disorders affect tens of millions of Americans annually (National Institute of Mental Health [NIMH], 2014), consequently, leading the cause of disability in the United States and Canada (Healthy People 2020, 2013). Unfortunately, only a fraction may receive treatment (NIMH, 2014). In 2011, nearly half a million Mississippi adults (aged 18 and older) had a psychiatric or substance use disorder in the prior year and an annual average of 4% of adolescents received treatment at a specialty inpatient or residential treatment center from 2010 through 2011. Additionally, an annual average of 3.6% of adolescents in Mississippi had an unmet need for alcohol abuse treatment for 2010 through 2011 aggregated (SAMHSA, 2012). In 2012, over 130,000 (20%) Mississippi children were diagnosed with a psychiatric disorder compared to 17% in the country (Annie E. Casey Foundation [AECF], 2013). Training the PMHNP as a behavioral healthcare professional that can provide primary mental healthcare in rural Mississippi mental health HPSAs will alleviate the workforce shortage and increase access to care.

*APRN workforce development.* Mississippi Governor Phil Bryant spearheaded an initiative to make a difference in health care and addressed workforce development as a strategic goal. A projection of approximately 5,000 new nurses will be needed by 2016 and nurse practitioners will also play a role in assisting the physician workforce (Hess et al., 2012). Although it was projected that 25 more APRNs or physician assistants (PAs) would be needed, emphasis was placed on the significance of fostering the growth of both physicians and APRNs to fill the primary care shortage. A significant strategy identified was the improvement of access to rural healthcare which encompassed expanding the scope of practice for APRNs (Hess et al., 2012).

Advocates purport that nurse practitioners could assist more rapidly in filling the gap for the primary care shortage than physicians (HPB, 2012). It takes approximately 6 years for a nurse practitioner to complete training and education with a bachelor's and master's degree, while it may take a physician 11 to 12 years, encompassing education and residency (HPB, 2012). If the nurse has completed an undergraduate degree in nursing and returns to school, additional training as a nurse practitioner is 2 to 3 years and either a masters or doctoral degree is obtained. Nurse practitioners are educated and trained to diagnose and treat physical and mental disorders, providing services comparable to physicians (Yee, Boukus, Cross, & Samuel, 2013). Pre-requisites to PA programs encompass the completion of two years of undergraduate courses and the length of a PA program is approximately 27 months (American Academy of Physician Assistants [AAPA], 2011). No requirement exists for a graduate degree, though about 50% of PAs are reported to have a graduate degree (Carrier et al., 2011). In all states PAs are required to work under the supervision of a physician, while APRNs may treat patients independently, if state scope-of-practice law permits. Permitting APRNs to practice to the full extent of their training is deemed necessary by the Deloitte Center for Health Solutions and the BPC (BPC, 2013).

The Deloitte Center for Health Solutions in collaboration with the Bipartisan Policy Center (2013) projected that on a national level, greater than 700,000 registered nurses (APRNs encompassed) will also be needed by 2020. On the other hand, the Bureau of Labor Statistics projected an additional 1.2 million more nurses will be needed by 2020 (U.S. Bureau of Labor Statistics [USBLS], 2012). The relevance of enhancing education and training of the APRN was addressed in both studies (BPC, 2013; Hess et.

al., 2012). Subsequently, the lack of available education posed a significant barrier for the APRN workforce development.

*APRN education and training.* According to the American Association of Colleges of Nursing (AACN, 2013a) preliminary survey data, U.S. entry-level baccalaureate nursing programs turned away greater than 53,000 qualified applicants in 2013 (AACN, 2013a). While in 2012, 80,000 qualified graduate and baccalaureate nursing program applicants were impacted related to lack of faculty, clinical sites, classroom space, clinical preceptors, and budget constraints (AACN, 2012b). In 2012, in Mississippi, 2,336 students enrolled in baccalaureate and graduate nursing programs. There were 488 students enrolled in master's programs and 115 in doctoral programs in the state of Mississippi. While 430 qualified applicants were turned away (AACN, 2013c), the workforce shortage was impacted even further and ultimately perhaps decreased access to rural behavioral healthcare. The Chief Communications Officer of the American Association of Colleges of Nursing (AACN) reported final data results effective March, 2014, that showed that57,944 applicants were turned away from entry-level baccalaureate nursing programs, while 78,089 applicants were turned away from baccalaureate and graduate nursing programs in the country; 461 qualified applicants were turned away from baccalaureate and graduate nursing programs in Mississippi alone (Robert Rosseter, personal communications, April 4, 2014).

*APRN scope of practice.* In addition to educational restraints, in the United States restrictive APRN scope of practice laws and federal regulations may impede access to care (Hess et al., 2012; Kaplan et al., 2012), also contributing to rural mental healthcare workforce shortages (Carrier, et al., 20ll; Trossman, 2013). Scope of practice laws may

vary from state to state regulating APRNs (HPB, 2012; NGA, 2012; Pearlman, 2013; Yee et al., 2013), and often do not permit the APRN to practice to the full scope of education or training (NGA, 2012). Regulatory barriers in place encompass required physician supervision (physician has some amount of responsibility for the APRN) or collaboration (relationship that is mutually agreed upon between APRN and physician), restrictions on prescriptive authority (APRN ability to write prescriptions), and duplicative regulatory structures (regulation of APRN practice may encompass the board of nursing and the board of medicine) (Center to Champion Nursing in America [CCNA], 2010). In 2012, the District of Columbia and 18 states permitted APRNs to diagnose and treat patients, and prescribe medications for patients without physician supervision (HPB, 2012; Yee et al., 2013). Seven states required physician supervision for prescribing medications, and the remaining 25 states required physician supervision for prescribing, treatment plans, and diagnoses (Yee et al., 2013). For instance, APRNs that practice in states such as Hawaii, Idaho, Alaska, and Arkansas have the authority to practice independently without any conditions or requirements (NGA, 2012).

In Mississippi, scope-of-practice laws which are duplicative encompass: (1) a collaborative relationship with a physician of a similar specialty (Mississippi State Board of Nursing [MSBN], 2010; Mississippi State Board of Medical Licensure [MSBOML], 2014), (2) prescriptive authority approval for Schedules II-V narcotic drugs from the board of nursing with Drug Enforcement Administration (DEA) registration (HBP, 2012), (3) maintaining a quality assurance program with collaborating physician (MSBN, 2010; MSBOML, 2014) encompassing a review of 10% or 20 charts (the least) of patients seen by APRN every month, and (4) the facility in which an APRN is treating

patients independently must be within 15 miles of the primary office of the collaborating physician. Exclusions encompass volunteer clinics, state health department facilities, licensed hospitals, and federally qualified community health clinics (MSBOML, 2014).

Restrictions imposed on Mississippi APRNs that encompass mandatory collaboration or supervision with a physician, restrictions on prescribing Schedule II-IV controlled substances, and limits on distance permitted from a physician all deter APRNs from opening private independent practices (Kaplan et al., 2012). On the state and federal level, the Centers for Medicare and Medicaid Services (CMS) have imposed regulations that reimburse physicians for specific services, but not APRNs, also deterring them from opening a private independent practice due to lack of direct payment or low reimbursement rates (Trossman, 2013; Yee et al., 2013). Nevertheless, APRNs were more apt to practice in rural remote areas than physicians, and PMHNPs were more likely to practice in rural areas than psychiatrists, 13% to 7%, respectively (Hanrahan &Hartley, 2008; Trossman, 2013).

*PMHNP Workforce Development*

Many individuals with a psychiatric disorder are treated in the primary care setting (Gamm et al., 2010; Rural Assistance Center [RAC], 2013) and may receive insufficient treatment from primary care clinicians who are not trained, educated, or lack skills to treat psychiatric disorders. Primary care physicians may be reluctant to diagnose a patient with a psychiatric disorder due to stigma, interest in acceptability of the patient, and long term reimbursement for service (Gamm et al., 2010; McCabe & Macnee, 2002; RAC, 2013). The psychiatric mental health nurse practitioner (PMHNP) may be the provider that provides access to behavioral healthcare in rural underserved areas (NRHA,

2012), thus alleviating the pressures on the primary care workforce (Yee et al., 2013). While the PMHNP may be a significant resource to meet the rural behavioral healthcare workforce needs, workforce shortage and uneven distribution of the PMHNP exist.

In 2004, a national study conducted by the National Sample Survey of Registered Nurses (NSSRN) captured urban versus rural distribution of the PMHNP. The results indicated that approximately 83% of PMHNPs practiced in urban regions, while only 16.8% practiced in rural regions (Hanrahan, Delaney, & Merwin, 2010). The National Center for Workforce Analysis pointed out that data collection attainment requires improvement at the state and national level. The significance of improving tools and methodology for the projection of supply and demand, as well as potential shortages, is vital (USDHHS, 2013b).

## Needs Assessment

The Institute of Medicine (IOM, 2011) indicates that effective workforce planning and policy making requires better data collection and an improved information infrastructure through collaboration with state licensing boards and state nursing workforce centers. Therefore, knowledge of the number of PMHNPs, practice settings where PMHNPs are employed, and demographic information are essential. Demographics should encompass age, gender, racial diversity, and education, (IOM, 2011; BPC, 2013).

### *Mississippi Board of Nursing*

The Director of Advanced Practice for the Mississippi Board of Nursing (MSBN) reports that, currently, no data has been compiled by the MSBN depicting the distribution of the PMHNP in the state of Mississippi (Dr. Lynn Langley, personal communication,

May 20, 2013). Data from the MSBN (2012) indicated that 79 PMHNPs were licensed in the state of Mississippi in 2011 as compared to 255 licensed psychiatrists in 2012 (MSBOML, 2012). According to data from the MSBN (2012), over the past five years, seven to seventeen new PMHNPs have been certified annually. For instance, in 2011, six adult PMHNPs and four family PMHNPs were newly certified and licensed in the state of Mississippi. Data from the MSBOML (2011) depicted that only five general psychiatrists and not any child adolescent psychiatrists were newly certified during the fiscal year of 2011.

The MSBN identified problems in current system and processes (Lynn Langley, personal communication, August 2, 2013). Specialty areas were not clear for each APRN. For example, a flaw in the current database system and the current recertification process identified all certified registered nurse anesthetists (CRNAs) as PMHNPs. Further data analysis depicted a total of 2,407 APRNs currently licensed and practicing in the state of Mississippi as of June 06, 2013. Preliminary data indicated that there were 102 licensed PMHNPs out of the 2,407 APRNs identified. In addition, counties that APRNs were practicing in were not identified. For example, a PMHNP actively practiced in two counties, but the system only detected one county. Overall, 3,000 practice sites were found to lack a corresponding county code for all APRNs (Lynn Langley, personal communication, August 2, 2013). Further data analysis is pending to determine each PMHNP's county of employment. PMHNP distribution in rural or urban areas will be determined, as well as, other demographics (Lynn Langley, personal communication, August 2, 2013). Figure 1 shows the trend from 2004 to 2013 (with the exception of 2012) of the number of licensed PMHNPs in the state of Mississippi (Lynn

Langley, personal communication, January 27, 2014; MSBN, 2012). In 2004, 10.9% (n = 26) of adult PMHNPs and 6.72% (n = 16) of family PMHNPs resulting in a total of 17.62% (n = 42) were licensed. In contrast, the percentages in 2011, were 25.3% (n = 32) and 37.1% (n = 47), respectively, totaling 62.4% (n = 79). Approximately, from 2004 to 2011, an 88% increase of PMHNPs occurred in the state of Mississippi (MSBN, 2012). Recently, national PMHNP certification has changed from certification as a family or adult PMHNP to certification as family only, enabling all PMHNPs to meet the needs of children as well as adults and adolescents with psychiatric diagnoses (ANCC, 2014). As of December 31, 2013 121 PMHNPs were licensed in the state (Lynn Langley, personal communication, January 27, 2014) creating a 42% increase since 2011. The PMHNP is in a unique position to make a significant contribution to behavioral healthcare workforce in rural Mississippi.

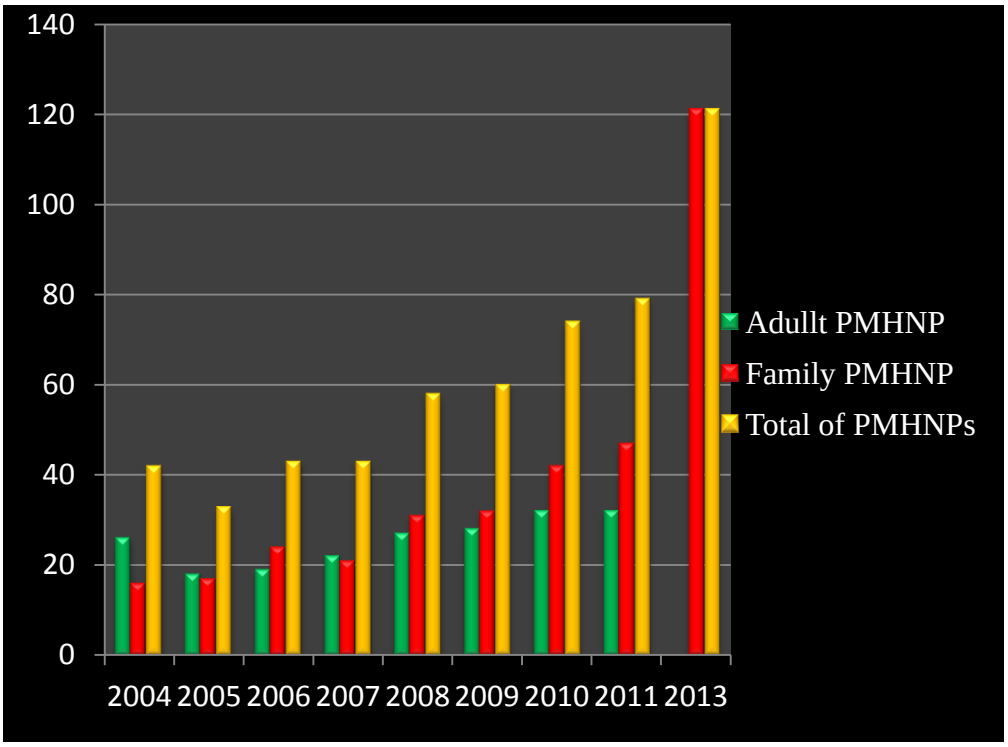



*Figure 1.* Trend of certified Adult and Family PMHNP's in Mississippi, 2004 – 2011, 2013. Number of PMHNPs licensed per fiscal year.

*Mississippi Office of Nursing Workforce*

The Executive Director of the Mississippi Office of Nursing Workforce (MONW) also purported lack of data focused on the various specialty areas of Advanced Practice Registered Nurses (APRNs). Currently, the MONW conducts an annual nursing workforce survey in alliance with the Mississippi State Department of Health (MSDH) Division of Licensure and Certification. Surveys are issued to acute care hospitals and long term care facilities throughout the state of Mississippi. Nursing workforce data is analyzed to determine current and future needs (MONW, 2013b). Data is categorized by nine public health districts to maintain anonymity. However, the Executive Director of the MONW purported that PMHNP workforce data is a significant gap that is missing in the surveys (Wanda Jones, personal communication, December, 14, 2012). Even so, the

MONW conducted an original online APRN workforce survey in collaboration with the Mississippi Nurses Association (MNA) and the MSBN in June, 2013. Of the APRNs surveyed, 39% responded to the survey (Wanda Jones, personal communication, September 18, 2013). The purpose of the survey was to capture data regarding APRNs licensed in the state of Mississippi to share with policymakers and key stakeholders to make evident the essential need of APRNs to provide and improve health care services in the state of Mississippi (MNA, 2013; MONW, 2013b). More specifically, a need exists to improve data collection to project supply and demand of the PMHNP. According to the Bipartisan Policy Center (BPC, 2013), supply and demand may be determined by utilizing uniform minimum health datasets to improve data collection. Supply and demand data should be collected regularly and at a minimum should be comprised of such variables as demographics, and education and practice patterns in order to project workforce development (BPC, 2013). Thus, this doctoral capstone project will address whether improving workforce data collection on current PMHNP workforce development projects the need for a rural behavioral healthcare workforce in the state of Mississippi.

## Review of Literature

A literature search was conducted on CINAHL, PubMed, Ebscohost, MEDLINE, and the Agency for Healthcare Research and Quality (AHRQ) scientific databases. Search keywords included *PMHNP, Workforce Data Collection, APRN Workforce and Shortage, Workforce Distribution, Workforce Development,* and *Rural Mental Health.* Databases were cross referenced for overlap. If articles were published before 2002, search results were eliminated with the exception of one classical original article published in 1991. The review of the literature examined scientific evidence on how data

is collected on PMHNP workforce distribution in order to project the need for rural behavioral health workforce development.

*Workforce Data Collection*

A study conducted by the Deltoid Center for Health Solutions in alliance with the Bipartisan Policy Center's (BPC's) Health Professional Workforce Initiative Expert Advisory Panel (BPC, 2013) examined 12 health care professions' (APRN inclusive) primary databases, national employment estimates, and future projections. National, uniform, reliable, and valid collection of this data was proven to be a very difficult task. Supply and demand variables projected current and future workforce development. Labor market factors effect workforce supply variables such as income, scope-of-practice and state licensure laws, faculty shortages, training time, aging, gender, race/ethnicity, work hours, geographic location, economic conditions, and job satisfaction. Demand is effected by changing patterns of utilization as a consequence of variables such as changes in the prevalence of disease in the country's population, population demographic changes (like aging), health care reform and expansion (PPACA), greater demand for primary care services, and education (licensing, training and specialty) (BPC, 2013).

States vary in methods and metrics of data collection (The National Forum of State Nursing Workforce Centers [NFSNWC], 2009). The importance of creating a national data repository for accuracy, accessibility, and benchmarking to project shortages and to implement policy to resolve them was emphasized. In collaboration with several workforce centers throughout the country, the Center to Champion Nursing, and experts from national organizations, the NFSNWC created a minimum dataset to address the supply and demand of nursing in the country (NFSNWC, 2009). A survey was done

in 25 states to determine the most critical variables which were utilized to create the minimum datasets. The minimum dataset that addressed the supply was comprised of 18 variables: race/ethnicity, birth year, entry level education, highest level of education, license type, year of initial licensure, license status, APRN license/certification, employment status, reason for being employed, number of positions employed in, hours worked per week, employers address, employment setting, employment position, and employment specialty. minimum data set demand variables included: full-time equivalent positions (FTEs), FTE vacancies being recruited or on hold, employed full-time workers (average), employed part-time workers (average), employed per diem workers, employed agency, contract, and traveling FTEs, annual FTEs organization plans to employ, and workers leaving the organization (NFSNWC, 2009).

Specific data collection sources for nursing (RN and APRN) encompassed HRSA: National Sample Survey of Registered Nurses, Pearson: Nurse Practitioners, American Academy of Nurse Practitioners (AANP): National Nurse Practitioner Survey and Database, National League for Nurses (NLN), AACN, and the National Council of State Boards of Nursing (NCSBN). Findings indicated that current healthcare workforce supply data is inconsistent, fragmented, and limited. The importance of retrieving workforce supply data from several sound database sources encompassing national and state databases, professional organizations, and societies to capture and analyze workforce supply issues was highlighted. Confirmation of the dire need to project workforce development through supply and demand variables was emphasized (BPC, 2013).

The National Council of State Boards of Nursing (NCSBN) in collaboration with the Forum of State Nursing Workforce Centers (FSNWCs) conducted the 2013 National Nursing Workforce Survey of Registered Nurses (Budden, Zhong, Moulton, & Comiotti, 2013). Licensed RNs (encompassing APRNs) throughout the country were randomly selected with the majority taken from Nursys, the NCSNB's licensure database. The database consisted of demographic and contact information of the licensed RNs. Surveys were distributed January 2013 and the deadline for completion was March 2013 (Budden, et al., 2013). A modified version of the Dillman approach, a step by step method, was utilized to optimize mail survey response rates (Dillman, 1991). The Dillman approach encompasses four elements that amplify response rates: (1) a questionnaire that is user friendly, (2) three contacts are made by mail with either a telephone call or certified mail, (3) use of postage-paid return envelopes, (4) and correspondence that is personal (Dillman, 1991). Budden et al. (2013) included a dollar incentive in letter invitations, and an optional online survey to initial responders. Demographic data analyzed encompassed supply variables of gender, race/ethnicity, number of years since graduation, number of years since initially licensed, employment settings, employment job title, highest level of education, and employment specialty (Budden et al., 2013).

The survey response rate of participants was 39% (n = 42,294). In this study 3,046 RNs were reported as also being certified as APRNs while over 50% identified themselves as NPs. The highest level of education for nurse practitioners was a master's degree (77%) and the majority were in the age range of 55 to 59 (18%). Forty-eight percent (n = 950) of nurse practitioners were employed in ambulatory care and other community-based settings, 28% (n = 561) in hospital settings, while 6% (n = 127)

worked in academic settings. Out of approximately 2,000 nurse practitioners, 7% (n = 145) specialized in psychiatric mental health. Inconsistent statistics in categories were found related to specific variables missing data (Budden et al., 2013). The project leader will utilize this knowledge to insure accuracy in categorizing variables and in the reporting of actual valid answers to questions or statements posed.

*Workforce Distribution*

A study by Kaplan et al., (2012) examined data from the Centers for Medicare and Medicaid services National Plan and Provider Enumeration System's National Provider Identifier (NPI). The objective was to identify the degree to which the data could be utilized to assess and characterize the distribution of APRNs in the rural and urban regions of the United States. The APRNs encompassed nurse practitioners (NPs), certified registered nurse anesthetists (CRNAs), certified nurse-midwives (CNMs), and clinical nurse specialists (CNSs). Methodology encompassed analyzing the number of APRNs who possessed active licenses practicing in the United States to ascertain if the numbers were adequate to conduct the study. As of March 2010, 152,608 APRNs met the criteria. The CNMs and CNSs workforce distribution were not tracked due to lack of correlation between the national supply and current NPI data (Kaplan et al., 2012).

APRNs were categorized by state into three categories depending on the scope of practice. The NPs three categories encompassed the following: (1) states granting full statutory autonomy, (2) states in which practice and or prescriptive authority required a collaborating physician, and (3) states in which physicians are required to supervise or delegate practice authority or prescriptive authority to an NP. The scope of practice was derived from state laws and regulations in 2010. Zip codes from NPI data distinguished

primary practice locations. The locations were connected to Rural Urban Commuting Area (RUCA) codes which were categorized into various degrees of rural areas. The level of autonomy affiliated with the choice to practice in a rural region was assessed utilizing multivariate hierarchical regressions. Supply variables identified were one individual variable (practitioner gender) and one contextual variable (practitioner supply). The APRN supply was measured by number per 10,000 state population (Kaplan et al., 2012).

Kaplan and et al. (2012), found that within the United States out of 106,113 APRNs, 89,947 (84.8%) practiced in urban areas, while 16,166 (15.2%) practiced in rural areas. Therefore, a national urban per capita ratio of 3.6, and a national rural per capita ratio of 2.8 per 10,000 population existed. In the state of Mississippi, out of 1,508 APRNs (5.1 per 10,000 population), 696 practiced in urban areas, while 812 practiced in rural areas. Mississippi was found to have the highest number of rural NP's in the nation. Findings suggested that APRNs were more apt to practice in rural areas that had consisted of state laws and regulations with more autonomy (Kaplan et al., 2012). A limitation found in this study was that the PMHNP was not clearly specified. Therefore, the lack of data specifically regarding the PMHNP existed.

*PMHNP workforce.* The most recent national survey that addressed the PMHNP workforce was a role delineation study conducted by the American Nurses Credentialing Center (ANCC, 2012). The purpose of the study was to collect data on the work activities performed by PMHNPs in practice. However, demographic supply variables collected greatly contribute to the lack of data regarding the PMHNP workforce. The survey was drafted by ANCC staff and a special panel, pilot tested,

revised, and then administered on the web. Responses were measured using a hierarchical method and weighted. A total of 466 PMHNPs responded out of 1,342 total population. The South had the greatest number of respondents (42.1%), while the Midwest had the lowest number of respondents (16.8%). Findings included: 86% of the respondents were white and nearly 5% were black or African American; nearly 88% were female, while nearly 11% were male; over 60% fit in the age bracket of 45to 64 years; for approximately 75% the highest degree was a Master's in nursing while nearly 7% held doctorate of nursing practice (DNP) degrees; nearly 10% indicated that they practiced in a rural area (population less than 2,500), while nearly 40% indicated that they practiced in the city (population between 50,000 to 249,999); approximately 23% reported that their current primary employment setting was community/public health, while nearly 14% reported the hospital, inpatient setting, and approximately 4% reported Psychiatric Forensic as a primary setting (ANCC, 2012).

Hanrahan and Hartley (2008) conducted a workforce survey study with analysis that encompassed PMHNPs home zip codes that were linked to the zip code version of Rural Urban Commuting Areas (RUCA). However, work zip codes were not accessible, which presented as a limitation of the study since PMHNPs may not work in the rural area which they reside. Other methods of analysis encompassed PMHNP rural distribution and workforce characteristics. Data was also retrieved from the United States Department of Agriculture's Economic Research Service website to determine the ratio of PMHNPs to 100,000 rural residents by state (Hanrahan & Hartley, 2008). PMHNPs were more apt to practice in rural areas than psychiatrists, 13% and 7%, respectively. The focus of the study was to describe the PMHNP characteristics,

workforce rural distribution, and to explore the PMHNPs plausibility to curtail the rural mental health workforce shortage. The mean age of the PMHNP was 52. Other supply variables identified included employment setting, work hours (full-time or part-time), and number of places employed. Southern states were found to possess the lowest density of PMHNPs, while northern states possess the second highest density. The rural PMHNP population per 100,000 ranged from .06 to 14.9 (Hanrahan & Hartley, 2008).

In 2010, Hanrahan et al., reported current knowledge regarding PMHNPs, and considered policy implications for strengthening the workforce and strategies for PMHNP utilization. PMHNP supply variables that addressed workforce characteristics, employment patterns, and geographic distribution were described utilizing multiple data sources. Hanrahan et al. analyzed data from organizations encompassing the National Sample Survey of Registered Nurses (NSSRN), the American Nurses Credentialing Center (ANCC), the Association of Psychiatric Nurse Practitioners (APNA), and the International Society of Psychiatric-Mental Health Nurses (ISPN). For instance, data from the NSSRN survey were derived from 2004, which indicated that 15,973 PMHNPs were practicing in the United States. Various supply variables that included job satisfaction, employment characteristics, practice setting, and educational trajectory were addressed. Findings showed that the concentration of PMHNPs in any state correlated directly with the prevalence of advanced practice education and a regulatory environment. Uneven distribution between rural and urban areas was also found to exist. Nevada (lowest density) depicted the least number of PMHNPs (0.64%), while Maine (highest density) depicted the greatest number (20.55%) per 100,000 population. Mississippi depicted a density of 5.72% per 100,000 population (Hanrahan, et al., 2010).

Similarly, Ghosh, Phil, Sterns, Drew, and Hamera (2011) identified geographic areas with the PMHNP workforce shortage. Uneven distribution of PMHNP workforce among rural and urban counties existed. Data was retrieved from the American Nurses Credentialing Center (ANCC) utilizing the employment location (supply variable) zip codes of certified PMHNPs during the year of 2007. The total number of PMHNPs was 10,452. A geographical analysis was conducted utilizing the Geographic Information Science (GIS) technique which "stores, manipulates, visualizes, and analyzes data that are linked to geographic locations" (Ghosh, et al., 2011, Methods section, para 2). The pattern of distribution of the PMHNP was determined by utilizing a two-step method. Step 1 entailed increasing visualization and mapping of PMHNPs at the county level utilizing United States Census zip code data. Step 2 entailed a cluster analysis which identified geographic regions with the hot spot analysis tool. "Hot spots" delineated areas with clusters of a significant number of PMHNPs. "Cold spots" also captured delineated cluster areas with low numbers of PMHNPs (Ghosh et al., 2011).

Ghosh et al. (2011) found that an uneven distribution of PMHNPs among rural and urban counties existed. The higher concentration of PMHNPs were located in the northeastern United States, while the least numbers of PMHNPs were in Alabama, Louisiana, Oklahoma, and the Appalachian region. A significant number of PMHNPs were found to practice in urban versus rural areas and the least numbers were found in southern states (Ghosh et al., 2011).

Moreover, Thomas et al. (2009) examined the shortage of behavioral health professional workforce at the county level across the nation and found that a vast prescriber shortage existed, approximately each county (96%) lacked prescribers. An

objective was to stimulate dialogue of data improvements and standards of practice in order to establish a sufficient behavioral health professional workforce. The behavioral health professional workforce for the purpose of the study encompassed: psychiatrists, psychologists, PMHNPs, social workers, licensed professional counselors, and marriage and family therapists. The six professions were categorized into two subgroups: prescribers, and nonprescribers. The prescribers depicted the psychiatrists, while the nonprescribers depicted the remaining five professions. The PMHNP was delineated as a nonprescriber (Thomas et al., 2009).

The behavioral health professional workforce shortage was conceptualized ”as the percentage of need for mental health visits that is unmet within a county as of 2006” (Thomas et al., 2009, Methods section, para 1). The measurement of county level need was calculated by approximating the prominence of serious mental illness. Next, the individual approximates of provider time needed by patients with and without serious mental illness were merged. Data were procured from the National Comorbidity Survey Replication, the United States Census, and the Medical Panel Expenditure Survey. National certification boards, state licensure boards, and professional associations were utilized to analyze county level supply data. Thomas et al. (2009) found that a vast prescriber shortage and uneven distribution of nonprescribers existed. In the nation, overall, 77% of the counties depicted a significant shortage in prescribers or nonprescribers with greater than 50% of their need unmet. Approximately one out of five counties lacked nonprescribers (18%), while approximately each county (96%) lacked prescribers. The greatest unmet need was found in rural counties. Thomas et al., (2009) pointed out that in order to establish an adequate mental health professional

workforce, data improvements were essential. A demand variable that was inclusive was the focus on behavioral health professional groups that were educated at the master's level or doctoral level (Thomas et al., 2009). The need for prescribers discernibly exists.

In summary, earlier and recent literature indicate that uneven distribution of PMHNPs exists in urban and rural areas (Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; Kaplan et al., 2012; Thomas et al., 2009). However, data collection methods were incongruent and were found to be an issue of uncertainty in the literature. Findings were fairly consistent depicting that a significant number of PMHNPs practice in urban versus rural areas. Southern states were found to depict less PMHNPs than the northern states (Hanrahan & Hartley, 2008; Ghosh et al., 2011).

Data clearly indicates a lack of information and reliable data systems regarding the number and geographic distribution of PMHNPs in rural behavioral health care settings as well as the need to utilize various credible workforce data resources. Furthermore, researchers purported the importance of this data to assist workforce planners, employers, educators and policy makers. The issues of policy, scope of practice, clinical practice education, retention, and recruitment were all addressed as essential in the trajectory of PMHNP workforce development (Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; Kaplan et al., 2012; Thomas et al., 2009). There was a lack of current evidence that clearly and specifically examined data that focused on the uneven distribution of the PMHNP workforce, specifically within the state of Mississippi. The lack of uniform and consistent supply and demand variables that determine workforce projection exist in data collection methods. Evidence indicates that supply variables such as scope of practice, geographic location, age, gender, race, place

of employment, year of licensure, certification specialty, entry level education, highest level of education, license type, year of initial licensure, employment status, position, and setting, as well as demand variables such as full-time equivalent positions (FTEs), FTE vacancies being recruited or on hold, employed full-time workers (average), employed part-time workers (average), employed per diem workers, employed agency, contract and traveling FTEs, annual FTEs organization plans to employ, workers leaving the organization, population demographics, incidence and prevalence of disease, and workforce education all play a role in projecting workforce development (Budden et al., 2013; Ghosh et al., 2011; Hanrahan & Hartley, 2008; Kaplan et al., 2012; Thomas et al., 2009). The NFSNWC emphasized the importance of standard minimum datasets that encompassed similar supply and demand variables as other studies, but not identical (NFSNWC, 2009), indicating inconsistencies in methods and metrics in workforce data collection throughout the country. Therefore, it is deemed valuable to examine how workforce data collection, using minimum data sets, projects PMHNP workforce development in rural behavioral health care settings in the state of Mississippi in order to shape healthcare policy and ultimately improve access to mental healthcare services. A summary of the relevant review of the literature is found in Appendix A.

## Theoretical Framework

In the current trajectory of PMHNP workforce development, information is needed to effectively address the current and the projected workforce shortages. Researchers purported that a lack of reliable detailed data systems exist to capture the PMHNP workforce distribution (Hanrahan & Hartley, 2008; IOM, 2011; Kaplan et al., 2012; Thomas et al., 2009). Change is essential. Unexpected and unplanned change may

complicate change initiatives. Planned change strives to enhance operations of human systems through deliberate, conscious, and collaborative endeavors which expedite change and promote a chance of long-term benefit (White & Zaccagnini, 2011).

Change is needed to foster diffusion of innovation. Such innovations encompass quality improvement and skill development in improving PMHNP workforce data collection methods. New knowledge is required that may entail organizational policy and or program changes (Spross & Hanson, 2009). The utilization of a theory to support the change process promotes a less difficult transition (White & Zaccagnini, 2011).

In Kurt Lewin's theory of planned change, change is defined as a dynamic force within a system or organization that maneuvers, in opposite directions, the force field analysis. The restraining force maintains the current state, pushing individuals near change. The driving force advances change, individuals push back the change. The driving force must surpass the restraining force in order for change to manifest (Lewin, 1951; White & Zaccagnini, 2011).

The theory of planned change identifies three stages: unfreezing, movement, and refreezing. The first stage, unfreezing, encompasses the current state, or individuals letting go of prior ways or habits, the status quo. There may be dissatisfaction among organization members and they may believe that change is necessary. Members willingly give up the prior way of doing things and consider alternatives. The development of motivation and an evolution of change occurs (Erwin, 2009; Glenn, 2010; Lewin, 1951; White & Zaccagnini, 2011). The primary organizations that the project leader will be affiliated with for implementation of the capstone project will encompass the Mississippi Office of Nursing Workforce (MONW) and the Mississippi State Board of Nursing

(MSBN). Even more importantly, key stakeholders, such as policy makers, educators, healthcare planners, and healthcare leaders play a role in funding change that will ultimately impact the economics of health in the state of Mississippi.

The second stage, movement, is the process where implementation of the change takes place. Within this stage, three strategies are identified: empirical-rational, normative-reeducative, and power-coercive (Lewin, 1951). The empirical-rational strategy entails the provision of knowledge that the change will reform the problem. For instance, knowledge is powerful. The availability and accessibility of PMHNP workforce data will provide evidence to policymakers, such as the governor of Mississippi, Governor Phil Bryant, of the need for behavioral health funding. The normative-reeducative strategy encompasses a change in attitudes and values. A change in attitudes of policy makers may be facilitated with evidence from this project substantiating the value and long term benefits of providing funding for behavioral healthcare and the need for nursing education. In the final strategy, power-coercive, power is utilized to implement change, and the policy makers denote power. Movement to a new model or standard occurs; a new perspective of the problem is created. More acceptable behaviors are adapted and there is movement by members to a new paradigm. Respected leaders, such as policy makers, who fully understand the need for change provide support (Lewin, 1951; White & Zaccagnini, 2011). As depicted in the MONW organization, significant buy in from the Executive Director of the MONW and the Director of Advanced Practice for the MSBN does exist, however, buy in from key stake holders, such as policy makers, educators, and healthcare planners is imperative.

The Mississippi State Department of Mental Health (MSDMH) Medical Director has been contacted and has verbalized support and great interest; however, the MSDMH Medical Director only has authority over the inpatient psychiatric state facilities. As a result, the Chief Executive Officer (CEO) of the Mississippi Association of Community Mental Health Centers was also contacted. The MSDMH is responsible for monitoring, certifying, and assisting the Community Mental Health Centers (CMHC) in the state of Mississippi (MSDMH, 2013). The CEO later referred the project leader to the Director of the Bureau of Quality Management for the MSDMH who is directly responsible for disseminating an annual workforce survey to the regional (outpatient) CMHCs (personal communication, Kristine Jones, November, 18, 2013).

In the final stage, refreezing, the goal is to restore the equilibrium. New attitudes and behaviors evolve as the norm for the members of the organization (Lewin, 1951; Glenn, 2010,). As change is planned, MONW systems will be redesigned and transformed to ultimately improve APRN workforce data collection methods (Spross & Hanson, 2009) that will be utilized to obtain accurate, available, and accessible data to disseminate as evidence to policy makers, educators, healthcare planners, healthcare employers and leaders projecting PMHNP workforce needs (Appendix B).

## Doctor of Nursing Practice (DNP) Essentials

This capstone project will meet the eight DNP essentials. The DNP essentials foster the trajectory of the practice of a doctoral prepared advanced practice nurse, insuring that the DNP prepared nurse possesses the skills to translate, apply, and evaluate new science (AACN, 2006). Ultimately, the DNP prepared nurse translates evidence into practice through performing activities that improve the reliability of health care practice

and outcomes (ACCN, 2006). The project leader has integrated the DNP essentials into the aim of the capstone project through performing activities to address improved PMHNP workforce development data collection (Appendix C).

## Evaluation Plan

The evaluation plan entails the collection of data to measure change in a practice or population holding stakeholders accountable, lending clarity to the project, while authenticating quality improvement (White & Zaccagnini, 2011). The diagram (Appendix D) demonstrates the logical sequence of the capstone project. The directors of the organizations (stakeholders), their time volunteered, and computer equipment deemed necessary to implement the project inputs. Constraints may be imposed related to limited time, the current culture of the organizations, and policy. Activities entail meeting with organizational directors, obtaining surveys, and accessing and analyzing pertinent workforce data from organization leaders, websites, and databases. Outputs are comprised of immediate results and the PMHNP workforce baseline data (hours of meetings and volunteer time). Outcomes are comprised of short term (knowledge of the number and distribution of PMHNPs in the state) and long term goals (improved data collection methods, infrastructure, and collaboration between organizations) with the ultimate impact of creating change in workforce development collection methods contributing to strengthening the workforce nationally.

## Assumptions

The assumptions of the project are as follows:

- Workforce data records and surveys from the MSBN, MONW, MSDMH, and the Mississippi State Department of Health (MSDH) will be accessible.

- Buy in from key stakeholders of the Mississippi Association of Community Mental Health Centers and the Mississippi State Department of Mental Health will exist.
- All participants who participated in the organization survey questionnaires responded honestly and to the best of their abilities.

## Purpose

The purpose of this scholarly capstone project was to: (a) determine the number of PMHNPs licensed and employed and (b) project the need for PMHNP workforce development in the state of Mississippi. The design, setting, population, procedures, and plans for data analysis will be discussed.

# CHAPTER II

# METHODS

## Setting

The setting for the project was the Mississippi Office of Nursing Workforce (MONW) and the Mississippi State Board of Nursing (MSBN). The culture of the MONW projected was one of caring, encompassing the goal of improving workforce data collection processes. The MONW was established as an entity of the MSBN to address changes to impact the nursing workforce (MONW, 2013a). Through the collaborative effort of the Robert Wood Johnson Foundation, the Mississippi Legislature, and other partners or stakeholders, funding was provided to improve access, quality and safety in health care for the people of Mississippi. Other partners with the MONW consisted of the Mississippi Nurses Association (MNA), the Mississippi Hospital Association (MHA), the Mississippi State Department of Health (MSDH), the Mississippi State Department of Mental Health (MSDMH), the Mississippi Department of Employment Security (MDES), the Nursing Organization Liaison Committee (NOLC), and the Mississippi Council of Deans and Directors of Schools of Nursing (MCDDSN) (MONW, 2013a).

Initiatives addressed by the MONW included the annual workforce needs survey of hospitals that was conducted in alliance with the Mississippi State Department of Health's facility licensure and certification period. The goal of the survey was to project future needs of nursing services within the state and also to disseminate accurate data to health care planners, policy makers, educators, and employers. The hospital survey was administered to the healthcare facilities (n = 59) that the MSDH licenses and certifies to provide psychiatric services, including 49 general acute care hospitals with designated

psychiatric services (general, geriatric, and or substance abuse), two private free standing psychiatric facilities, and seven psychiatric resident treatment facilities throughout the state (MSDMH, 2010). The majority of the 49 general acute care hospitals facilities provided only geriatric psychiatric services (n = 33, 67.3%) while 8.2% (n = 4) provided general, 12.1% (n = 6) provided general and substance abuse services, 6.1% (n = 3) provided geriatric and substance abuse services, 4.0% (n = 2) provided general, geriatric, and substance abuse services, and the least, 2.0% (n = 1) provided general and geriatric services. The 49 general acute care hospitals were dispersed among the nine Mississippi public health districts (Appendix E) with the majority (12) located in District V (West Central), and the least located in District VII (Southwest) (MSDMH, 2010 MSDH, 2013). The free standing psychiatric facilities encompassed Alliance Health System, Brentwood Behavioral Healthcare, and Pine Grove Behavioral Health and Addiction Services, all of which provided services to adults, children, and adolescents. The psychiatric resident treatment facilities included Parkwood Behavioral Health System, Specialized Treatment Facility, Cares Center, The Crossings, Millcreek of Pontotoc, Millcreek Psychiatric Residential Treatment Facility, and Diamond Grove Center Psychiatric Residential Center, all of which provided services to children and adolescents (MSDMH, 2010).

While the MONW was established as an entity of the MSBN, the MSBN is the state agency that is responsible for regulating the practice of nursing in the state of Mississippi. The protection of the public is the target focus through implementation of the Mississippi Nurse Practice Law following rules and regulations derived from the Administrative Code. The Board's law and code render explanation of basics for scope

of practice, minimum requirements for licensure, and disciplinary actions. Licensure is granted to all levels of nursing (MSBN, 2013). The MSBN partnered with the MONW and the MNA as a significant player to capture data regarding APRNs licensed in the state of Mississippi to share evidence with key stakeholders and policymakers demonstrating APRNs as essential healthcare providers in the state (MNA & MONW, 2013).

## Population

The population for this project consisted of certified psychiatric and mental health nurse practitioners (PMHNPs) that were in the MSBN database as licensed PMHNPs during the period of January 1, 2013 through December 31, 2013; PMHNPs that complete the 2013 MONW, MNA, and MSBN Advanced Practice Registered Nurse (APRN) survey; and PMHNPs that were identified as employees at least one of the following facilities: (1) inpatient behavioral health facilities, (2) general acute care hospitals with general, geriatric, or chemical dependency psychiatry services, (3) free standing psychiatric facilities; and (4) psychiatric residential treatment facilities.

## Design

The design of the project was secondary data analysis of existing data from the MONW and the MSBN.

## Procedures

Approval (Appendix J) was obtained from the Institutional Review Board (IRB) at the University of Southern Mississippi prior to implementing the doctoral capstone project. Data was collected on current PMHNPs licensed and employed in the state of Mississippi through three sources: (1) the MSBN (period of January 1, 2013 to December

31, 2013); (2) the 2013 MONW, MNA, and MSBN Advanced Practice Registered Nurse (APRN) Survey (Appendix F); and (3) the MONW Annual Survey of Hospitals-Fiscal year (FY) 2013 (Appendix G).

*Measures*

*MSBN.* Data from the MSBN database identified the number of PMHNPs licensed in the state of Mississippi from January 1, 2013 to December 31, 2013 and was obtained by the MSBN Director of Advanced Practice. The supply variables that were collected included year of birth, highest level of education, APRN license type/population focus, license status, employment status, employer's address/county, employment setting, employment position, and employment specialty. Additional variables that were collected included: role designation, additional national certifications, major field of employment, and county and state of primary residence.

*2013, MONW, MNA, and MSBN Advanced Practice Registered Nurse (APRN) Survey.* The MONW APRN survey (Appendix F) was conducted in June 2013 in collaboration with the MNA and the MSBN. The purpose of the survey was to capture data regarding APRNs licensed in the state of Mississippi to share with policymakers and key stakeholders to make evident the essential need of APRNs as health care providers in the state of Mississippi (MNA, 2013; MONW, 2013a). Participants were identified as all licensed APRNs in the state who were contacted through their email addresses obtained from the MSBN database. The survey was administered online via Survey Monkey by the executive directors of the MONW and the MNA with a unique link maintaining anonymity and confidentiality. Participants granted permission to participate voluntarily. Further confidentiality and anonymity were established by reporting data by public health

districts in the aggregate. Responses were collected during the month of June 2013. Over a period of three weeks seven reminder emails were sent. Out of 2,866 APRNs that received the invitation to participate, 35.66% (n = 1,022) responded. Original data was analyzed by the MONW with assistance from the research staff at the University of Mississippi Center for Population Studies (CPS). The project leader carefully examined existing data results that specifically measured the PMHNP supply and conducted a secondary analysis of abstracted data from the survey addressing supply variables encompassing the following: (1) APRN and practice status including license type/population focus, role designation, employment specialty, additional national certification, and employers address/county; (2) education information including highest educational level, current enrollment in school, program enrolled in, program location, and plans to return to school; (3) employment information including employment status, days worked a week and hours worked per day, and employment setting; (4) and demographics including age, race/ethnicity, gender, and county residence.

*MONW annual survey of hospitals and long term care facilities.* The MONW annual workforce needs survey for hospitals (Appendix G) and long term facility surveys (Appendix H) areconducted annually in October by the MONW in collaboration with the MSDHs facility licensure and certification. The Executive Director of the MONW submitted a letter (Appendix I) to the Chief Executive Officer and/or the Chief Nursing Executive of all of the hospitals and long term care facilities in the state. The letter requested that the letter and survey be forwarded to appropriate personnel in Nursing Services and/or Human Resources to complete and return within approximately two months. The letter clearly stated the goal of the survey which entailed identifying current

and future needs of nursing services within the state in order to share accurate data with educators, policymakers, employers, and health care planners. Participation was voluntary, and confidentiality and anonymity were clearly indicated in the letter. Data was reported by public health district in the aggregate. If the response rate from the long term facilities survey is greater than 85%, typically no follow up is required. If the response rate is less than 85%, up to three letters are sent after the deadline seeking participation from nonrespondents. Conversely, if the hospital survey response rate is 85% or more in hospitals with a bed occupancy rate of 100 or greater, follow up phone calls, and or emails, and up to three letters are mailed out to remind nonresponders to complete the survey following the deadline. After surveys were received, the MONW statistician and or consultant statisticians analyzed the data (Wanda Jones, personal communication, February 19, 2014).

The project leader examined the survey data to determine the demand for PMHNPs. Data was abstracted and analyzed on the nursing personnel FTE for PMHNPs including current and vacant, while projected nursing personnel needs for 2014 were specified for certified nurse practitioners (CNPs) which included the PMHNP.

*Data Collection*

The abstracted supply and demand data were examined and analyzed utilizing the National Forum of State Nursing Workforce Centers (NFSNWC, 2009). Minimum Datasets were comprised of variables which determined APRN supply and project workforce development (demand). The number of PMHNPs licensed and employed in the state was measured by number per 100,000 in each public health district population and reported using minimum dataset supply variables. Minimum dataset demand

variables were used to report and measure projection of PMHNP workforce development from the limited data that was available (NFSNWC, 2009).

*Minimum Dataset Supply Variables*

The minimum dataset supply variables were collected from the MSBN database and the 2013 MONW, MNA, and MSBN APRN Survey (Appendix F) and include:

(1) Demographic, employment, education, and APRN categories were encompassed with the following variables: age, gender, county of residence, employment address or county, employment status, employment setting, license type (population focus), role designation, and highest level of education. The APRN survey consisted of the following questions that corresponded with each variable: questions 5, 41, and 42 corresponded to the demographics; question 37 corresponded to education; questions 6, 18, and 23 corresponded to employment; and questions 2, 3, and 4 corresponded to the APRN variables.

- Question 5 -"In which county do you reside?" with an open-ended response.
- Question 41 - "How old are you?" and the response entails with six variance ranges of age: (a) 18 to 24, (b) 25 to 34, (c) 35 to 44, (d) 45 to 54, (e) 55 to 64, and (f) 65 and older.
- Question 42 - "What is your gender?" with three variances: (a) male, (b) female, or (c) other.
- Question 37 -"What is your highest educational level?" with seven variances: (a) Baccalaureate degree: Nursing, (b) Baccalaureate degree: Non-nursing, (c) Master's degree: Nursing, (d) Master's degree: Non-

nursing, (e) Doctoral degree Nursing Practice (DNP), (f) Doctoral degree: Other Nursing, and (g) Doctoral degree: Non-nursing.

- Question 6 - "In which county (counties) do you practice? (check all that apply)", all 82 counties are listed as variances.
- Question 18 - "What is your employment status?" The variances include (a) Full time, (b) Part time, (c) Per diem, and (d) Unemployed.
- Question 23 - "Are you employed by a hospital?" The variances consist of yes and no responses.
- Question 2 - "What is your APRN role designation?" The four variances included (a) Certified Registered Nurse Anesthetist (CRNA), (b) Certified Nurse Midwife (CNM), (c) Certified Clinical Nurse Specialist (CCNS), and (d) Certified Nurse Practitioner (CNP).
- Question 3 - "If your role is a CNP or CCNS, what is your primary population focus"? Six variances are listed: (a) Family/ across the lifespan, (b) Adult/gerontology, (c) Pediatric, (d) Neonatal, (e) Women's health/gender related, and (f) Psychiatric.
- Question 4 - "What additional national certification(s) do you hold?" with an open-ended response.

Data regarding the variable of age were retrieved from the MSBN database from the year of birth listed. The age was calculated from the year of birth subtracted from 2014 and was categorized into the range of ages as listed in question 41 from the APRN survey. Information retrieved from the MSBN database regarding the highest level of education, employment status, APRN role

designation, and license type (population focus) were categorized identically to variances listed in questions 42, 37, 18, 2 and 3 from the APRN survey.

Data abstracted from the MSBN database and the APRN survey (question 5 and 6) regarding county of residence and practice were analyzed uniformly by public health district in the aggregate utilizing descriptive statistics (frequency distribution, and measures of central tendency).

Responses to Questions 5, 6, 18, and 23 were coded and statistically analyzed utilizing chi square analysis to determine if any relationship existed.

(2) The supply variable of license status was collected from one source, the MSBN database.

- Variances identified for the license status included either (1) active or (2) inactive.
- Employment setting variables included: (a) inpatient geriatric psychiatric services, (b) inpatient adult or general psychiatric services, (c) inpatient substance abuse psychiatric services, (d) private free standing psychiatric facilities, (e) state funded inpatient facilities, (f) Community Mental Health Centers, (g) private psychiatric clinic, (h) nursing home, and (i) other.
- Each variable, (a) through (i), was analyzed as collected in the current category.
- Each variable was computed into a new dichotomous variable for analysis into hospital and non-hospital settings. Variables (a), (b), and (c) were categorized as hospital, since they are inpatient services provided within

an acute care hospital setting and variables (d), (e), (f), (g), (h), and (i) were categorized as non-hospital. Both corresponded with Question 23 in the APRN survey.

(3) The supply demographic variable of race and employment (days worked per week and hours worked per day) and education (enrolled in school, program enrolled, program location, and plans to return to school) variables were collected from one source, the APRN survey. Demographic, employment, and education variables correlated with questions 43 and 44; 19 and 20; and 38 through 40, respectively.

- Question 43 - "What is your race/ethnicity?" with a response of six variances: (a) American Indian or Alaska Native, (b) Asian, (c) Black/African American, (d) Native Hawaiian or Pacific Islander, or (e) White.
- Question 44 - "Are you Hispanic/Latino?" with a response of yes or no.
- Question 19 - "On average, how many days a week do you work?"
- Question 20 - "On average, how many hours a day do you work?"
- Question 38 - "Are you currently enrolled in school?", with open-ended response which will be coded yes or no.
- Question 39 - "if YES, please describe the program, including its location", with an open-ended response.
- Question 40 - "If NO, do you intend to return to school?", with a response of three variances (a) Yes, within the next 5 years, (b) Yes, but in more than 5 years, and (c) No.

Responses to questions 38, 39 and 40 were coded, categorized and analyzed utilizing descriptive statistics and measures of central tendency. Responses to questions 43 and 44 were categorized as categorical variables, while responses to questions 19 and 20 were coded as continuous variables. Chi-square was utilized as the method of analysis to determine if any relationship existed.

*Minimum Demand Datasets Variables*

Variables derived from the minimum demand datasets were collected from one source, the Hospital survey. The demand variables addressed consisted of (a) full-time equivalents (FTEs) currently budgeted, (b) FTE vacancies being recruited/on hold, and (c) the number of FTE's the organization intended to employ in one year (APRNs).

(1) The corresponding items from the Hospital survey consisted of the following items :

- Item 1(1)E(a) - "Indicate the current number of vacant full-time equivalent positions (FTEs) for the certified nurse practitioner"
- Item 1(2)E(a) - "Indicate the total number of current budgeted FTEs for the certified nurse practitioner"
- Item 1(3)E(a) - "Indicate the number of FTEs you intend to have in the coming year for the certified nurse practitioner"

Descriptive statistics were utilized to analyze demand variables.

## Ethical Protection of the Human Subjects (IRB)

Approval to conduct this project was obtained from the Institutional Review Board of the University of Southern Mississippi (Appendix J) and letters of support were obtained from the MONW (Appendix K) and MSBN (Appendix L). Minimal risks

existed to the organizations or the population. The Director of Advanced Practice for the MSBN had authorization to access the MSBN database and shared data with this project leader. To ensure confidentiality and anonymity, participant information was protected through the use of codes assigned by the project leader on a data collection form. The data entered on the data collection form did not contain any identifying information. Physical and electronic de-identified existing data collected were numerically coded and entered into an Excel spreadsheet in order to maintain confidentiality. The spreadsheets identified supply and demand variables based on evidence-based minimum datasets. Physical data and code sheets were stored in the project leader's home in a locked file drawer and only the project leader had access to the locked file drawer.

Benefits to the organizations, MSBN and MONW, are not immediate, however, short-term benefits may entail dissemination of the findings which may project PMHNP workforce needs in the state of Mississippi. Findings can be disseminated to nursing and the community through publications and presentations to individuals who can positively impact PMHNP workforce development in behavioral healthcare settings in Mississippi. Long-term benefits for the organization and for PMHNPs may include the availability of more accessible data as evidence for policy makers, employers and health care planners, and educators, substantiating the need for behavioral health funding for workforce needs and nursing education.

## Planned Data Analysis

Supply variables were obtained from the MSBN database and the 2013 APRN survey. The minimum supply datasets consisted of the following variables: demographics (age, gender, race/ethnicity, county residence); education (highest level of education,

school enrolled, program enrolled, program location, plans to return to school); employment (status, hours worked/week, employer address/county, setting, position, population focus); and APRN (license type, status, role designation, additional certification population focus). Secondary analysis of annual workforce data from behavioral healthcare facilities included data provided by the Mississippi State Department of Health's (MSDH) inpatient psychiatric units within general acute care hospitals. Minimum demand datasets consisted of information on certified nurse practitioners (CNPs), specifying the PMHNP, and include current and vacant FTE's from the limited data that was available. Projected nursing (CNP) personnel needs for 2014 were identified.

All data were categorized and reported by aggregate. In order to maintain anonymity, PMHNPs were identified by nine public health districts which are county groupings designated by the Mississippi Department of Public Health (Appendix E). Districts I (Northwest), III (Delta/Hills), VI (East Central), VII (Southwest), and VIII (Southeast) are each comprised of nine counties, while Districts IV (Tombigbee) and V (West Central) are each comprised of 10, and the remaining two, Districts II and IX, are comprised of 11 and six counties, respectively. The state of Mississippi is comprised of a total of 82 counties (MSDH, 2013). The PMHNP supply was measured by number per 100,000 public district populations.

Demographic data were analyzed using (descriptive statistics) frequency distribution and through calculations of means and percentages, and measures of central tendency displayed visually in tables and graphs. Dichotomous variables and open-ended responses were collected, analyzed, and coded. All coded data were categorized

and entered into an Excel spreadsheet and then exported into the Statistical Package for the Social Sciences (SPPS) version 22 for analysis. Supply variables collected from the APRN survey and the MSBN database were analyzed by Chi Square to determine if relationships existed between the categorical variables. The specific supply variable of employment address/county collected from the APRN survey and the MSBN database was coded by public health districts utilizing descriptive statistics and displayed visually in a table and a histogram. Demand variables from the hospital surveys were analyzed using descriptive statistics.

# CHAPTER III

# RESULTS

The results of the capstone project were divided into two categories, the minimum supply dataset variables and the minimum demand dataset variables. The minimum supply dataset variables were derived from two sources: the MSBN database and the APRN survey. The minimum demand dataset variables were derived from one source, the MONW hospital survey.

## Minimum Supply Dataset Variables

The MSBN database and the APRN survey were addressed separately and not combined into one dataset. Likelihood exists that an individual in each sample may be represented more than once. The MSBN data represented all licensed PMHNPs practicing in the state, while the APRN survey represented a smaller subset. Data from both sources that were identically coded were presented in a table to clearly distinguish differences.

### *MSBN Database*

Out of nearly 2,500 licensed APRNs identified in the state of Mississippi, as of December, 2013, 4.8% (n = 121) were licensed as PMHNPs (Lynn Langley, personal communication, January 27, 2014). The total sample size of the MSBN database included 121 licensed PMHNPs. The majority of PMHNPs fit in the age category of 45-54 (n = 42, 34.7%); the highest level of education held was a Doctor of Nursing Practice (DNP) degree (n = 15, 12.4%) while, the greatest number of PMHNPs held a Master's in nursing (n = 102, 84.3%). Table 1 displays the age distribution by highest degree. The majority of PMHNPs (n = 35) fit in the age category of 45-54 and held a Master's in nursing as the

highest degree, while most of the PMHNPs (n = 7) with a DNP degree fit in the age bracket of 45-54, and the youngest and only PMHNP that held a DNP degree fit in the age category of 23-34.

Table 1

*Age of PMHNPs by Highest Degree Held from MSBN Database*

| Highest Degree | Category of Age | | | | N = 121 |
|---|---|---|---|---|---|
| | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
| Master's Nursing | 5 | 32 | 35 | 26 | 4 |
| Master's Non-nursing | 0 | 0 | 0 | 1 | 0 |
| Doctor of Nursing Practice | 1 | 1 | 7 | 5 | 1 |
| Doctoral Other Nursing | 0 | 0 | 0 | 2 | 0 |
| Doctoral Non-nursing | 0 | 1 | 0 | 0 | 0 |
| Total | 0 | 34 | 42 | 34 | 5 |

The majority of PMHNPs (n = 118, 97.5%) held active licenses, while only one (.8%) did not, and data were missing for the remaining two. All PMHNPs held national certification. Nearly 90 percent (n = 109) were certified by the American Nurses Credentialing Center (ANCC), while two (1.7%) held American Academy of Nurse Practitioners (AANP) certification, four (3.3%) held certifications from both agencies, and five (4.1%) held certifications from the American Association of Critical Care Nursing (AACCN).

A total of 112 PMHNPs (92.6%) were employed full-time, while 9 (7.4%) were employed part-time. Over one-third of PMHNPs 38.8% (n = 47) indicated that their

major field of employment was the hospital, while others in descending order included community/public health (n = 37, 30.6%), federal military (n = 12, 9.9%), self-employed (n = 4, 3.3%), nursing education program (n = 4, 3.3%), and industry (n = 1, .8%). The majority of PMHNPs (n = 113, 93.4%) held a position as a nurse practitioner, while nurse educator was the next most commonly held position (n = 4, 3.3%), and nurse administrator was the least held position (n = 3, 2.5%). Table 2 displays the principle employment settings for PMHNPs from the MSBN database. The most common single employment setting was the Community Mental Health Center (CMHC) (n = 16, 13.2%) followed by the state funded inpatient psychiatric (SFIP) facility (n = 13, 10.7%) and the private outpatient psychiatric clinic (POPC) (n = 5, 4.1%). Findings indicated that PMHNPs were employed in multiple settings encompassing 39 variations. Greater than 50% (n = 58) of PMHNPs were employed in more than one setting, while approximately 22% (n = 25) were employed in three or more settings, and 10.9% (n = 12) were employed in four or more settings. Items 1 through 3 were categorized as hospital settings, while 4 through 9 were categorized as non-hospital settings.

Table 2

*Settings of Employment for PMHNPs from MSBN Database*

| Employment Settings at Primary Position | Number | Percentage |
|---|---|---|
| Hospital Settings | | |
| 1. Hospital Inpatient Geriatric Psychiatric (HIGP) | 1 | .8 |

Table 2 (continued).

| Employment Settings at Primary Position | Number | Percentage |
|---|---|---|
| Non Hospital Settings | | |
| 2. Hospital Inpatient Adult or General Psychiatric (HIAGP) | 4 | 3.3 |
| 3. Hospital Inpatient Substance Abuse (HISA) | 0 | 0 |
| 4. Private Free Standing Psychiatric (PFSP) | 2 | 1.7 |
| 5. State Funded Inpatient Psychiatric (SFIP) | 13 | 10.7 |
| 6. Community Mental Health Centers (CMHC) | 16 | 13.2 |
| 7. Private Outpatient Psychiatric Clinic (POPC) | 5 | 4.1 |
| 8. Nursing Home | 1 | .8 |
| 9. Other | 16 | 13.2 |
| 10. HIGP and HIAGP (1, 2) | 3 | 2.5 |
| 11. HIGP and HIAGP and HISA (1, 2, 3) | 1 | .8 |
| 12. HIGP and HISA (1, 3) | 1 | .8 |
| 13. HIGP and PFSP (1, 4) | 2 | 1.7 |
| 14. HIAGP and HISA (2, 3) | 4 | 3.3 |
| 15. HIAGP and POPC (2, 7) | 1 | .8 |
| 16. PFSP and POPC (4, 7) | 2 | 1.7 |
| 17. SFIP and CMHC (5, 6) | 1 | .8 |
| 18. SFIP and Nursing Home (5, 8) | 1 | .8 |

Table 2 (continued).

| Employment Settings at Primary Position | Number | Percentage |
|---|---|---|
| 19. SFIP and other (5,9) | 1 | .8 |
| 20. CMHC and POPC (6,7) | 2 | 1.7 |
| 21. CMHC and Nursing Home (6,8) | 1 | .8 |
| 22. CMHC and Other (6, 9) | 8 | 6.6 |
| 23. POPC and Nursing Home (7, 8) | 1 | .8 |
| 24. HIAGP and HISA and PFSP and CMHC and Other (2, 3, 4, 6, 9) | 3 | 2.5 |
| 25. HIGP and SFIP and CMHC (1, 5, 6) | 2 | 1.7 |
| 26. HIGP and SFIP and CMHC and Other (1, 5, 6, 9) | 1 | .8 |
| 27. HIAGP and HISA and PFSP and CMHC and Other (2, 3, 4, 6, 9) | 1 | .8 |
| 28. HIAGP and HISA and POPC (2, 3, 7) | 1 | .8 |
| 29. HIGP and HISA and POPC and Nursing Home (1, 3, 7, 8) | 1 | .8 |
| 30. SFIP and POPC and Other (5, 8, 9) | 1 | .8 |
| 31. Psychiatric Residential Treatment Facility (PRTF) | 2 | 1.7 |
| 32. HIGP and SFIP and PRTF (1, 5, 31) | 1 | .8 |
| 33. CMHC and PRTF (6, 31) | 1 | .8 |
| 34. PFSP and POPC and PRTF (4,7, 31) | 1 | .8 |
| 35. HIGP and SFIP and POPC and Nursing Home (1, 5, 7, 8) | 1 | .8 |

Table 2 (continued).

| Employment Settings at Primary Position | Number | Percentage |
|---|---|---|
| 36. HIGP and CMHC and Nursing Home and Other (1, 6, 8, 9) | 3 | 2.5 |
| 37. HIGP and CMHC and Other (1, 6, 9) | 1 | .8 |
| 38. HIGP and Nursing Home and Other (1, 8, 9) | 1 | .8 |
| 39. HIGP and SFIP and CMHC and Nursing Home (1, 5, 6, 8) | 1 | .8 |
| Total | 110 | 90.9 |
| No Response Given/Missing Data | 11 | 9.1 |

Note. "Other" denotes psychiatric residential treatment centers, private community health centers or clinic, crisis centers, federal veteran administrative (VA) hospitals, industries, prisons, jails, and detention centers.

Table 3 shows the most frequent settings of employment of PMHNPs depicting multiple sites. Several PMHNPS were employed in more than one site and, therefore, were coded differently. The most frequent setting of employment was Community Mental Health Centers (CMHCs), the next most frequent employment setting was state funded inpatient psychiatric facilities, and the least included other settings comprised of psychiatric residential facilities, private community health centers or clinics, crisis centers, federal veteran administrative (VA) hospitals, industry, prisons, jails, and detention centers.

Table 3

*Frequency of Employment Settings for PMHNPs from MSBN Database*

| Employment Setting(s) | Frequency | Percentage |
|---|---|---|
| Hospitals | | |
| 1. Hospital Inpatient Geriatric Psychiatric | 19 | 15.6 |
| 2. Hospital Inpatient Adult or General Psychiatric | 19 | 14.8 |
| 3. Hospital Inpatient Substance Abuse | 15 | 12.3 |
| Non Hospitals | | |
| 4. Private Free Standing Psychiatric | 11 | 9.2 |
| 5. State Funded Inpatient Psychiatric | 22 | 18 |
| 6. Community Mental Health Centers | 41 | 33.8 |
| 7. Private Outpatient Psychiatric Clinic | 15 | 12.3 |
| 8. Nursing Home | 11 | 8.9 |

Note. The number of employment sites will exceed the total number for all employment sites because each PMHNP may report more than one site. Items 4 through 13 were categorized as "non hospital" settings.

Approximately 97% of PMHNPs (118) resided in the state of Mississippi, while others resided in Alabama (n = 1, 1%) and Florida (n = 2, 2%). The majority were employed in the state of Mississippi (n = 116, 95.9%), while 1.7% (n = 2) were employed in the state of California, and .8% (n = 1) were employed each in the states of Louisiana, Tennessee, and Texas.

The majority of PMHNPs (n = 118, 97.5%) held active licenses, while only one (.8%) did not, and data were missing for the remaining two. All PMHNPs held national certification. Nearly 90% (n = 109) were certified by the American Nurses Credentialing Center (ANCC), while two (1.7%) held American Academy of Nurse Practitioners (AANP) certification, four (3.3%) held certifications from both agencies, and five (4.1%) held certifications from the American Association of Critical Care Nursing (AACCN).

Figure 2 depicts the number of PMHNPs derived from the MSBN database residing in each public health district (PHD). Statewide, more than one-fourth of the PMHNPs (n =34, 28.1%) were found to reside in the West Central PHD V, while 18.2% (n = 22), and 17.4% (n = 21) resided in the Coastal Plains PHD IX and the East Central PHD VI, respectively. The least number of PMHNPs were found to reside in Tombigbee PHD IV (n = 3, 2.5%), Delta/Hills PHD III (n = 4. 3.3%), and Southwest PHD VII (n = 4, 3.3%). See Appendix E for PHD map.

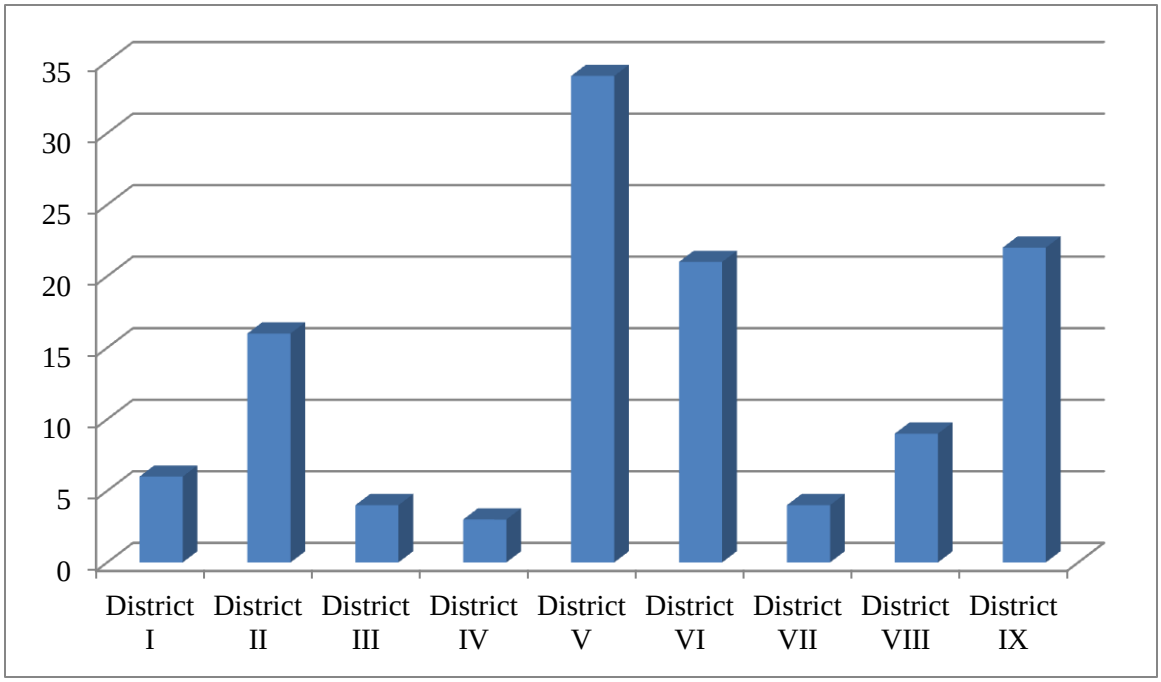



*Figure 2.* MSBN database PMHNPs residence by public health district (PHD).

Chi-square analysis indicated a statistically significant relationship between age and PHD of residence with a *p* value of .012 (See Table 4).

Table 4

*Chi-square Analysis for Age and PHD of Residence from MSBN Database*

| | Value | df | Asymp. Sig (2 sided) |
|---|---|---|---|
| Pearson Chi-square | 53.655 | 32 | .012 |

Figure 3 illustrates the number of PMHNPS in each PHD according to age. The majority of PMHNPs (n = 16) that fit in the age bracket of 45-54 were found to reside in West Central PHD V, while those aged between 55-64 (n = 11) resided in Coastal Plains PHD IX. Most of the PMHNPs that fell in the younger age group of 25-34 (n = 4) also resided in West Central PHD V, while those in the age bracket of 35–44 were dispersed evenly between West Central PHD V (n = 10) and East Central PHD VI (n = 10).

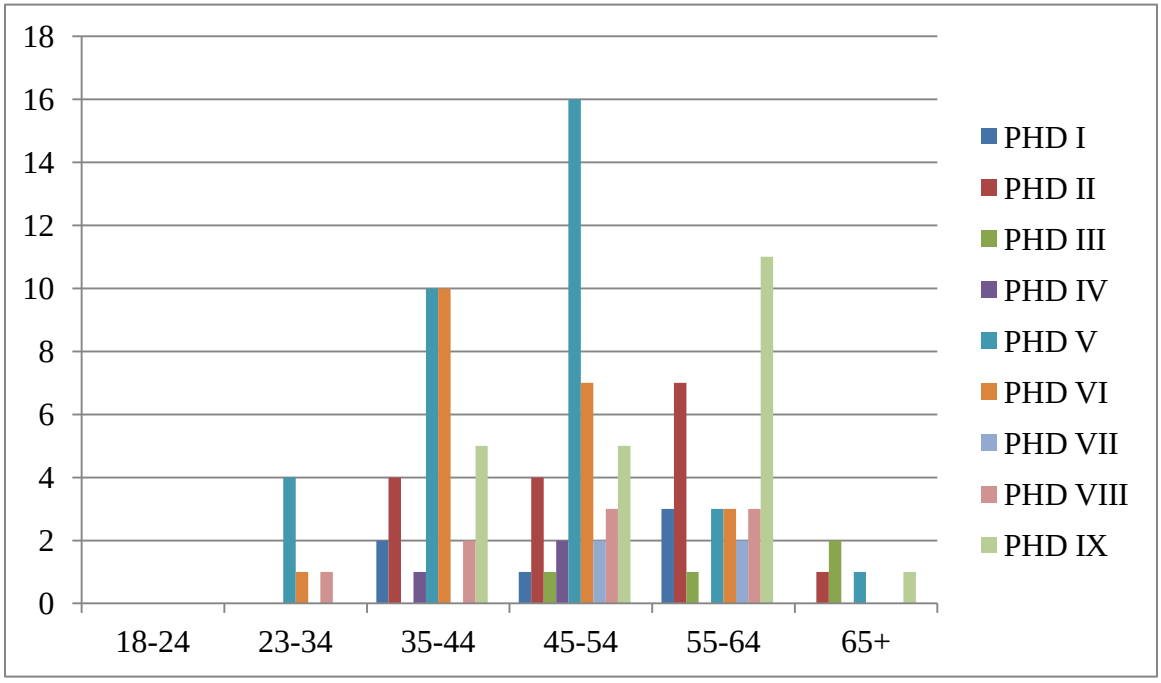



*Figure 3.* The number of MSBN database PMHNPs by age category per PHD of residence. PHDs are color coded as indicated on the right. The number of PMHNPs per PHD is indicated on the left.

Nine public health districts existed (see Appendix E), however, several PMHNPs were employed in more than one district and coded differently. Table 5 shows MSBN number of PMHNPs within the nine PHDs of employment and 12 additional variations of PHD employment. The most common single PHD of employment was West Central PHD V (n = 25, 20.7%), followed by Coastal Plains PHD IX (n = 19, 15.7%), then East

Central PHD VI (n = 1, .8%). The least common was Delta/Hills PHD III. Twenty-five (21.7%) PMHNPs were employed in at least two PHDs, while one was employed in as many as five.

Table 5

*Number of PMHNPs Employed in PHDs (Variations) from MSBN Database*

| Districts | N | Percent |
|---|---|---|
| I | 5 | 4.1 |
| II | 9 | 7.4 |
| III | 1 | .8 |
| IV | 2 | 1.7 |
| V | 25 | 20.7 |
| VI | 17 | 14.0 |
| VII | 3 | 2.5 |
| VIII | 9 | 7.4 |
| IX | 19 | 15.7 |
| I and II | 4 | 3.3 |
| I and III | 1 | .8 |
| II and IV | 2 | 1.7 |
| II and V | 1 | .8 |
| III and V | 6 | 5.0 |
| III, V and VI | 3 | 2.5 |
| III, IV, V, VI and VIII | 1 | .8 |
| IV and VI | 1 | .8 |
| V and VI | 1 | .8 |
| V and VII | 2 | 1.7 |
| VI and VIII | 1 | .8 |
| VIII and IX | 2 | 1.7 |
| Total | 115 | 95 |
| Missing Data | 6 | 5.0 |

Table 6 depicts the frequency of PMHNPs exclusively derived from the MSBN database employed within the nine PHDs and the number of PMHNPs per 100,000

populations. The PHDs with the highest number of employed PMHNPs to 100,000 population were East Central PHD VI (n = 10), West Central PHD V (n = 6.3), and Delta/Hills PHD III (n = 6). The PHDs with the lowest number included Northwest PHD I (n = 3) and Tombigbee PHD IV (n = 3). The greatest populated PHDs included West Central PHD V (n = 639,956) and Coastal Plains PHD IX (n = 478,763), while the least was Southwest PHD VII (n =185,022). East Central PHD VI was one of the least populated (n = 242,516) but had the greatest concentration of PMHNPs (n = 10) per 100,000 population.

Table 6

*Frequency of PMHNPs Employed Exclusively in Nine PHDs from the MSBN Database per Population*

| Districts | *Total Population | Frequency | Per 100,000 Population |
|---|---|---|---|
| I | 323,626 | 9 | 3 |
| II | 368,146 | 13 | 4.3 |
| III | 210,946 | 12 | 6 |
| IV | 245,769 | 6 | 3 |
| V | 639,956 | 38 | 6.3 |
| VI | 242,516 | 20 | 10 |
| VII | 185,022 | 5 | 5 |
| VIII | 309,286 | 12 | 4 |
| IX | 478,763 | 21 | 5.3 |

Note. *Total Population Estimates Data Source: The U.S. Department of Commerce, 2013b. The number of PMHNPs may exceed the total number of PMHNPs for PHD s because each PMHNP may report more than one PHD of employment.

Chi square analysis revealed that there was a statistically significant relationship between the PHD of residence and the PHD of employment at $p < .001$.

Table 7

*Chi-Square Analysis for PHD of Residence and PHD of Employment from MSBN Database*

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 635.891a | 160 | .000 |

As illustrated in Figure 4, PMHNPs were more likely to be employed in the PHD that they resided in.

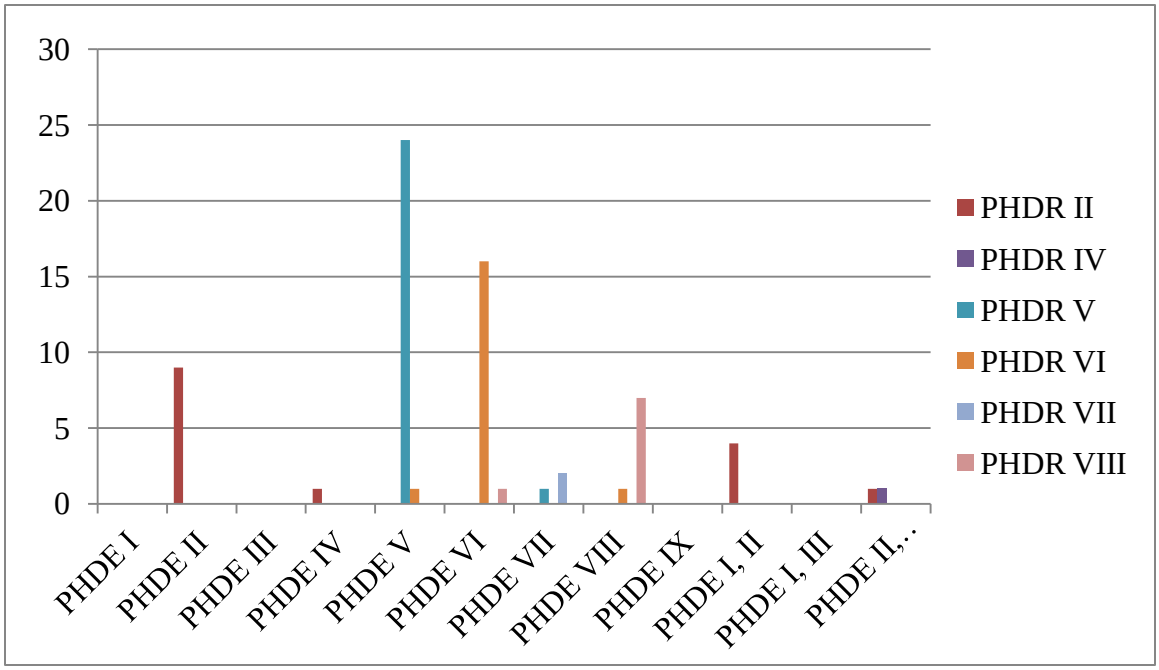



*Figure 4.* Number of MSBN database PMHNPs employed in their PHD of residence. PHDR = Public health district of residence; PHDE = Public health district of employment.

However, analysis did reveal that the majority of full-time PMHNPs (n = 24; 21%) were employed in West Central PHD V while the majority of part-time PMHNPs (n = 3; 3%) were employed in Coastal Plains PHD IX.

*APRN Survey.* Only 58 PMHNPs were identified out of 1,027 APRN survey respondents. The vast majority of PMHNPs were female (n = 47, 81%), and 6.9% (n = 4) were male, while 75.9% (n = 44) were white, and eight (13.8%) were black. Similar to MSBN database findings, the majority of PMHNPs fit in the age category of 45-54 (n = 22, 37.9%); the Doctor of Nursing Practice (DNP) was the highest level of education obtained (n = 2, 3.4%), while the greatest number of PMHNPs (n = 45, 77.6%) held a Master's in nursing. Table 8 displays the age distribution by highest degree. The majority of PMHNPs (n = 19) fit in the age category of 45-54 and held a Master's in

nursing as the highest degree, while the only two PMHNPs with DNP degrees fell in the age brackets of 35–44 and 55–65.

Table 8

*Age of PMHNPs by Highest Degree Held from APRN Survey*

| Highest Degree | Category of Age | | | | N = 45 |
|---|---|---|---|---|---|
| | 25-34 | 35-44 | 45-54 | 55-64 | 65+ |
| Master's Nursing | 1 | 9 | 19 | 14 | 0 |
| Master's Non-nursing | 0 | 0 | 0 | 0 | 0 |
| Doctor of Nursing Practice | 0 | 1 | 0 | 1 | 0 |
| Doctoral Other Nursing | 0 | 0 | 0 | 0 | 0 |
| Doctoral Non-nursing | 0 | 0 | 0 | 0 | 0 |
| Total | 1 | 10 | 19 | 15 | 0 |

Approximately 12% (n = 7) indicated that they were currently enrolled in school. While, nearly 28% (n = 16) reported plans to return to school.

Nearly 96% (n = 56) of the PMHNPs reported that their role designation was a CNP and that their primary population focus was psychiatry. Data was missing on the remaining two. In contrast, only 24.1% (n = 14) reported the American Nurses Credentialing Center (ANCC) as an additional certification, while 5.2% (n =3) reported PMHNP certification, and 1.7% (n = 1) reported both. Forty (69%) responses were missing from the data. Most of the respondents (n = 46, 79.3%) reported full-time employment, while 15.5% (n = 9) were employed part-time. Nearly 45% (n = 26)

indicated employment in a hospital setting versus a non-hospital setting. Unlike data derived from the MSBN database, settings were not specified in the APRN survey.

Figure 5 depicts the number of PMHNPs residing in each PHD as reported from the APRN survey. The majority of the respondents (n = 16, 28.6%) were found to reside in West Central PHD V, while 16.1% (n = 9) resided each in Northeast PHD II and Coastal Plains PHD IX, and the least (n = 1; 1.8%) in Northwest PHD I.

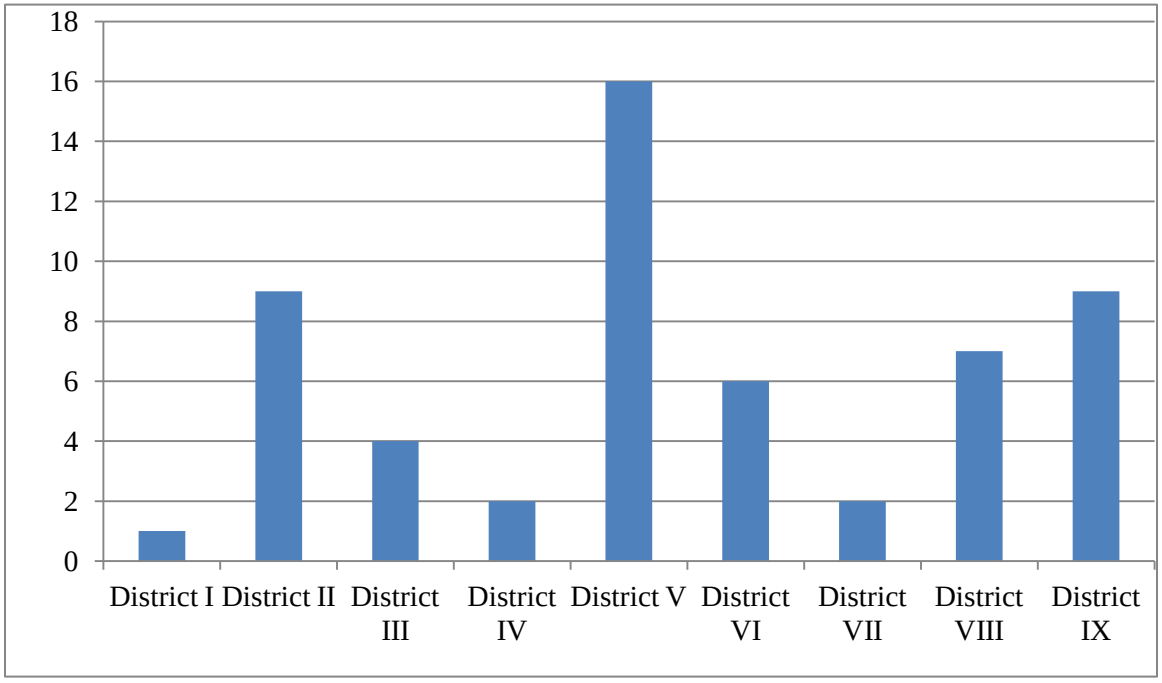



*Figure 5.* APRN survey PMHNPs residence by public health district (PHD).

Conversely, in Table 5, chi-square analysis indicated no statistically significant relationship between age and PHD residence from the APRN survey (*p* value of .382).

Table 9

Chi-square Analysis for Age and PHD of Residence from APRN Survey

| | Value | df | Asympt. Sig (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 25.441a | 24 | .382 |

Figure 6 illustrates the number of PMHNPs in each PHD according to age. The majority of PMHNPs that fit in the age brackets of 45-54 (n = 22) and 55-64 (n = 18) were found to reside in PHD V, while those between ages 35 and 44 (n = 11) resided in PHD VIII. The only one PMHNP that fell in the age bracket of 25-34 resided PHD VI.

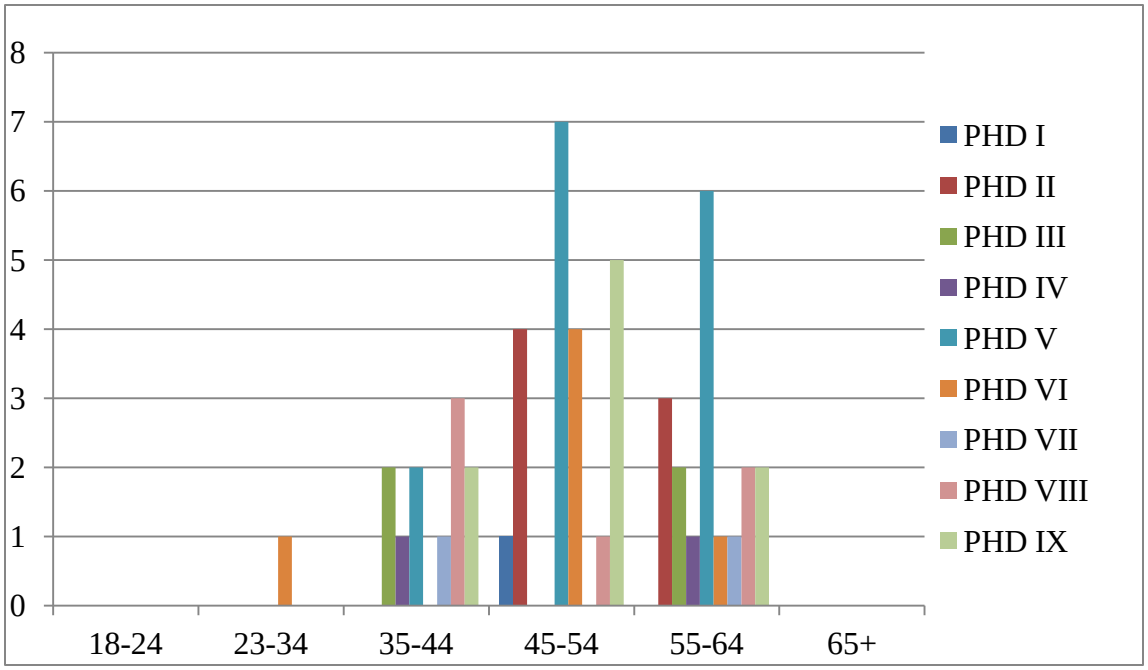



Figure 6. The number of APRN survey PMHNPs by age category per PHD of residence. PHDs are color coded as indicated on the right. The number of PMHNPs per PHD is indicated on the left.

Similar to the MSBN database, several PMHNPs from the APRN survey were also employed in more than one PHD and coded differently. Table 10 depicts the APRN survey number of PMHNPs within the nine PHDs of employment and six additional variations of PHD employment. The most common single PHD of employment was West Central PHD V (n = 14, 25.0%) followed by Coastal Plains PHD IX (n = 9, 16.1%), and then Northeast PHD II (n = 8, 14.3%). The least number of respondents reported that they were employed in PHDs I and VII, each with 1.8% (n = 1) in the Northwestern and Southwestern regions, respectively. Ten (5.5%) PMHNPs were employed in two PHDs.

Table 10

*Number of PMHNPs Employed in PHDs (Variations) from APRN Survey*

| Districts | N | Percent |
|---|---|---|
| I | 1 | 1.8 |
| II | 8 | 14.3 |
| III | 2 | 3.6 |
| IV | 0 | 0 |
| V | 14 | 25.0 |
| VI | 5 | 8.9 |
| VII | 1 | 1.8 |
| VIII | 5 | 8.9 |
| IX | 9 | 16.1 |
| V and VII | 2 | 3.6 |
| IV and VI | 1 | 1.8 |
| II and IV | 3 | 5.4 |
| III and V | 2 | 3.6 |
| I and V | 1 | 1.8 |
| II and V | 1 | 1.8 |
| Total | 55 | 98.2 |
| Missing Data | 1 | 1.8 |

Table 11 shows the frequency of PMHNPs from the APRN survey exclusively employed within the nine PHDs and the density per 100,000 populations. The highest density of employed PMHNPs to 100,000 populations were found in PHDs V (n = 3.3), VI (n = 3.0), and VII (n =3). While the lowest density of PMHNPs were found in PHDs IX (n = 0.41), I (n = 0.6), and VII (n = 1.7). Public health district (PHD) V was the most populated (n = 639,956) and held the greatest density of PMHNPs (n = 3) per 100,000

population. The least populated PHD was VII (n = 185,022), but was found to have 3 PMHNPs per 100,000 population.

Table 11

*Frequency of PMHNPs Employed Exclusively in Nine PHDs from APRN Survey per Population*

| Districts | *Total Population | Frequency | Per 100,000 Population |
|---|---|---|---|
| I | 323,626 | 2 | 0.6 |
| II | 368,146 | 12 | 4 |
| III | 210,946 | 5 | 2.5 |
| IV | 245,769 | 4 | 2 |
| V | 639,956 | 20 | 3.3 |
| VI | 242,516 | 6 | 3 |
| VII | 185,022 | 3 | 3 |
| VIII | 309,286 | 5 | 1.7 |
| IX | 478,763 | 3 | 0.41 |

Note. *Total Population Estimates Data Source: The U.S. Department of Commerce, 2013b. The number of PMHNPs may exceed the total number of PMHNPs for PHDs because each PMHNP may report more than one PHD of employment.

Similar to MSBN database results, chi-square analysis revealed that there was a statistically significant relationship between residential PHD and employment PHD at $p <$ .001 (Table 12).

Table 12

*Chi-Square Analysis for PHD Residence and PHD of Employment from APRN Survey*

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 337.750a | 104 | .000 |

PMHNPs were more likely to work in the PHD that they resided in (Figure 7). No statistically significant relationships were found between employment PHD and race or employment PHD and gender.

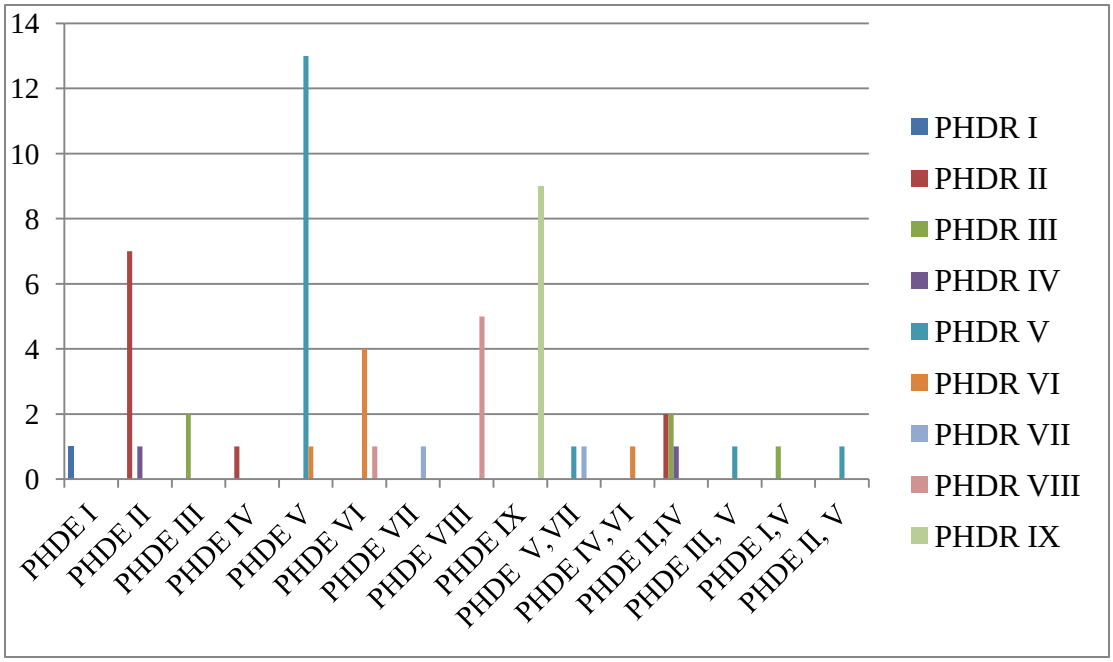



*Figure 7.* Number of APRN Survey PMHNPS employed in their PHD of residence. PHDR = Public health district residential; PHDE = Public health district of employment.

Other variables that were solely addressed by the APRN survey included days worked per week and hours worked per day. As illustrated in Figure 8, greater than 50%

(n = 34) of the PMHNPs reported working at least 5 days per week, approximately 5% (n =3) reported working 7 days per week, while 8.6% (n = 5) reported not working any days at all.

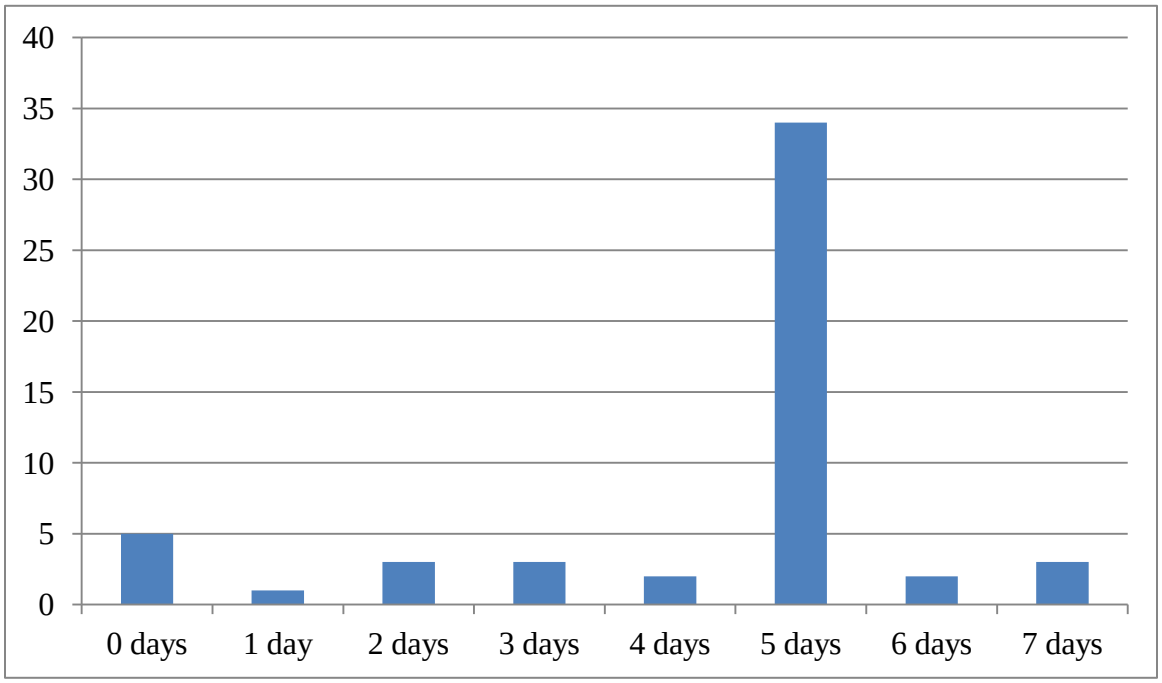



*Figure 8.* Days worked per week by number of PMHNP respondents in APRN survey. In descending order, greater than 50% (n = 31, 53.4%) of respondents reported working 8 hours per day, 12.1% (n = 7) reported 0 hours, 10.3% (n = 6) reported 10 hours, 5.2% (n = 4) reported 9 hours, while one respondent (1.7%) reported 12 hours (see Figure 9). The outlier responses were revised to scale.

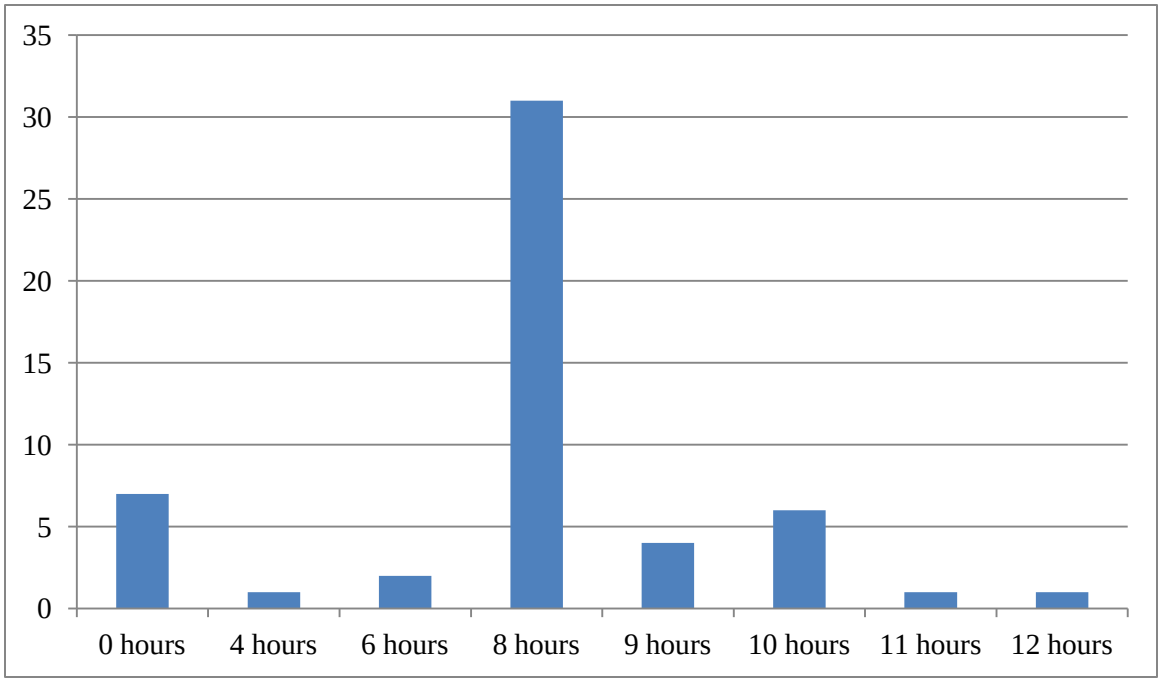



*Figure 9*. Hours worked per day by APRN survey of PMHNPs.

Table 13 summarizes minimum supply dataset variables from both sources that were coded the same, displaying the frequency and percentage of each. Similarities were found between both sources. The majority of PMHNPs from both sources were in the age bracket of 45-54, employed full-time, PMHNP population focused, and held a Master's in nursing as the highest educational level obtained.

Table 13

*Correlation of MSBN Database and APRN Survey Supply Variables with Same Coding*

| | N = 121 | | N = 58 | |
|---|---|---|---|---|
| Variable | MSBN Frequency | Percentage | APRN Frequency | Percentage |
| 1. Age Groups | | | | |
| 23-34 | 6 | 5.0 | 1 | 1.7 |

Table 13 (continued).

| Variable | N = 121 MSBN Frequency | Percentage | N = 58 APRN Frequency | Percentage |
|---|---|---|---|---|
| 35-44 | 34 | 28.1 | 11 | 19.0 |
| 45-54 | 42 | 34.7 | 22 | 37.9 |
| 55-64 | 34 | 28.1 | 18 | 31.0 |
| 65+ | 5 | 4.1 | 0 | 0 |
| 2. Employment Status | | | | |
| Full-time | 112 | 92.6 | 46 | 79.3 |
| Part-time | 9 | 7.4 | 9 | 15.5 |
| Per diem | 0 | 0 | 0 | 0 |
| Unemployed | 0 | 0 | 0 | 0 |
| 3. Population/License Focus | | | | |
| PMHNP | 90 | 74.4 | 56 | 96.6 |
| Family Across Lifespan and PMHNP | 24 | 19.8 | 0 | 0 |
| Adult Gerontology and PMHNP | 6 | 5.0 | 0 | 0 |
| 4. Highest Educational Level | | | | |
| Baccalaureate Nursing | 0 | 0 | 0 | 0 |
| Baccalaureate Non-nursing | 0 | 0 | 0 | 0 |
| Master's Nursing | 102 | 84.3 | 45 | 77.6 |
| Master's Non-nursing | 1 | .8 | 0 | 0 |
| Doctoral Nursing Practice | 15 | 12.4 | 2 | 3.4 |
| Doctoral Other Nursing | 0 | 0 | 0 | 0 |
| Doctoral Non-nursing | 2 | 1.7 | 0 | 0 |

Table 14 summarizes descriptive statistics from the two sources of minimum supply dataset variables: the MSBN database and the APRN survey. All variables were

not addressed by both sources. The number (N) of PMHNPs, mean (M), and standard deviation (SD) are indicated.

Table 14

*MSBN Database and APRN Survey Summary of Descriptive Statistics of PMHNP Variables with Means and Standard Deviations*

| MSBN Database | N | M (SD) | APRN Survey | N | M (SD) |
|---|---|---|---|---|---|
| Age | 121 | 3.89 (.966) | | 52 | 4.10 (.799) |
| Gender | * | * | | 51 | 1.08 (.272) |
| Race | * | * | | 52 | 1.15 (.364) |
| APRN role | 120 | 3.95 (.386) | | 56 | 1.00 (.000) |
| Population focus | 120 | 6.15 (2.089) | | 56 | 1.00 (.000) |
| Certification | 120 | 1.00 (.000) | | 18 | 1.72 (1.406) |
| License status | 119 | 1.01 (.092) | | * | * |
| Position type | 120 | 1.09 (.389) | | * | * |
| Employment status | 121 | 1.07 (.263) | | * | * |
| Major field of employment | 119 | 2.52 (1.987) | | * | * |
| Employee site: | 109 | 25.04 (23.922) | | * | * |
| Hospital | 5 | 1.66 (2.08) | | 53 | 1.51 (.505) |
| Non hospital | 75 | 4.16 (5.32) | | | |
| Both non hospital and hospital | 29 | 1.61 (0.97) | | * | * |
| Days worked in week | * | * | | 53 | 4.28 (1.801) |
| Hours worked in day | * | * | | 53 | 7.23 (3.080) |

Table 14 (continued).

| MSBN Database | N | M (SD) | APRN Survey | N | M (SD) |
|---|---|---|---|---|---|
| Highest degree | 121 | 3.61 (3.257) | | 47 | 1.04 (.204) |
| Enrolled in school | * | * | | 53 | 1.87 (.342) |
| Plans to return to School | * | * | | 47 | 1.66 (.479) |
| PHD of Residence | 119 | 5.51 (2.432) | | 56 | 5.46 (2.427) |
| PHD of Employment | 115 | 7.77 (4.539) | | 55 | 6.78 (3.500) |

Note. * Denotes variables not addressed.

*Minimum Demand Datasets Variables*

Variables derived from the minimum demand datasets were collected from one source, the Hospital survey. Out of the total of 118 hospitals in the state licensed by MSDH, 41.5% (n = 49) provide psychiatric services. Approximately 85% (n = 100) of the hospitals responded. Out of that 85%, data received from five (5%) hospitals indicated the employment PMHNPs. The five hospitals reported current PMHNP full time equivalents (FTEs): 1, 12, 8.32, 1 and 1, respectively, indicating a total of 23.32 current FTEs. Vacancies for all five hospitals were reported to be 1.25 FTEs (Wanda Jones, personal communication, June 4, 2014). Results were not reported by public health district (PHD) due to possibility of risking anonymity and confidentiality related to size of sample (Wanda Jones, personal communication, June 4, 2014). Data did not specify the PMHNP total number of FTEs intended to have in 2014. However, projection

results for the PMHNP in 2014 were inclusive with other NPs with the exception of acute care NPs, family NPs, and CRNAs. The total number of FTEs for all other NPs with PMHNPs inclusive projected for 2014 was 217.90.

# CHAPTER IV

# DISCUSSION

## Major Findings and Interpretations

The central purpose of this capstone project was twofold: (a) to determine the number of PMHNPs licensed and employed and (b) project the need for PMHNP workforce development in the state of Mississippi. The supply of PMHNPs licensed and employed in the state was measured by number per 100,000 in each public health district and reported using minimum dataset supply variables. The minimum dataset demand variables were used to measure projection of PMHNP workforce development.

*Minimum dataset supply variable sources.* Findings from both minimum dataset supply variable sources (MSBN database and APRN survey) depicted similarities. Both sources revealed that the majority of PMHNPs fit in the age category of 45-54, while the next most common age category was 55-64, and the highest level of education achieved was a Master's in nursing. The majority of PMHNPs fit in the age category of 45-54 that held a Master's in nursing as the highest degree. The APRN survey indicated that majority of respondents were female (81%) and white (75.9%), while the MSBN database did not indicate race or gender. These findings contrasted with several findings from a national survey that addressed the PMHNP workforce. In a study conducted by ANCC (2012), 86% of the respondents were white; nearly 88% were female; for approximately 75%, the highest degree was a Master's in nursing; and over 60% fit in the age bracket of 45 to 64 years. Supply variables such as aging project current and future workforce development (BPC, 2013). The PMHNP workforce is clearly aging, which could significantly impact the future if there is no infusion of new graduates.

The MSBN database source revealed that over one-third of PMHNPs indicated that their major field of employment was the hospital, while the community/public health sector was the next most common. However, with further analysis, the most common single employment setting was the Community Mental Health Center. Hospital settings for the MSBN database encompassed hospital inpatient geriatric services, inpatient adult or general psychiatric services, and inpatient substance abuse services and were coded as such. Approximately 4% (n = 5) from the MSBN database indicated that they were solely employed in the hospital setting, while 27% (n = 29) were employed in both hospital and non-hospital settings, and the majority 68% (n = 75) were employed in non-hospital settings. Nearly, 45 % of the APRN survey respondents indicated employment in a hospital setting, therefore, the majority were also employed in non-hospital settings. Even so, the type of hospital setting was not indicated since the APRN survey required a dichotomous response of yes or no to Question 23, "Are you employed by a hospital?" In contrast, a national study conducted by the ANCC (2012) found that 23% of PMHNPs reported that their primary employment setting was community/public health, while approximately 14% reported the hospital.

A significant variation existed between the MSBN database and the APRN survey results of certification. Nearly 90% (n = 109) of PMHNPs from the MSBN database held ANCC certification, while 69% (n = 40) of APRN survey respondent's responses were missing from the data. Approximately, 24% (n = 14) reported the ANNC as an additional certification. Coding and categorizing of this variable could have been addressed differently. Unfortunately, lack of clarity may have existed in APRN survey Questions 3 and 4 ("If your role is a CNP, or CCNS, what is your primary population focus?" and

"What additional national certification(s) do you hold?"), which may have precipitated lack of clarity in responses. Question 3 and 4 may have elicited clearer responses if the questions were framed differently. For example, ("If your role is a CNP or CCNS, what is your primary population focus national certification?" and "What additional national certification(s) do you hold in a different population focus?"). Certification specialty and state licensure instead of the name of the certifying body would have provided more valuable information. Additionally, primary and secondary practice site information, including the type of setting, position title, and employment specialty, for each practice setting should be collected by the MSBN at the time of licensure renewal. Race/ethnicity and gender are additional MSBN MDS information needed to determine the supply of APRNS in the state (National Forum of State Workforce Centers, 2009)

A major finding revealed within the MSBN database and the APRN survey that there was a statistically significant relationship between residential PHD and employment PHD ($p < .001$). PMHNPs were found to be more likely to work in the PHD that they resided in. Both sources also depicted that the majority of PMHNPS resided in West Central PHD V; however, the least from the APRN survey reported residing in Northwest PHD I, while the MSBN database depicted the least residing in Tombigbee PHD IV, Delta/Hills PHD III, and Southwest PHD VII. Several PMHNPs from both sources were also employed in more than one district. The MSBN database revealed that 22 % (n = 25) were employed in at least two PHDs, and one was employed in five different PHDs, while the APRN depicted that 10 (5.5%) were employed in two PHDs. This data will add to existing research, since the majority of research found was on a national level depicting each general state and did not specify individual counties or PHDs. However,

the main setting of employment was not specified (ANCC, 2012; Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; Kaplan et al., 2012). One study examined the shortage of behavioral health professional workforce (including PMHNPS) at the county level across the nation. The PMHNP was not specified, but, overall, 77% of the counties depicted a significant shortage with the greatest unmet need found in rural counties (Thomas et al., 2009).

The MSBN database depicted the density of PMHNPs per 100,000 populations within the nine PHDs ranging from a high of 10 in East Central PHD V to a low of three each in Northwest PHD I and Tombigbee PHD IV. A major finding of significance entailed that the West Central PHD V had the greatest number in population (n = 639,956), with three employed PMHNPs per 100,000 population, while East Central PHD VI, one of the least populated (n = 242,912) had the greatest concentration of employed PMHNPs (n = 10) per 100,000 population. In contrast, the APRN survey respondents reported the identical findings for the greatest number in population; however, the least populated PHD was VII (n = 185,022) which was found to have three employed PMHNPs per 100,000 population. There was a range of 3 (lowest) to 10 (highest) PMHNPs employed per 100,000 populations in the nine PHDs.

According to the Mississippi State Department of Health (MSDH, 2013), Mississippi is one of the most rural states in the country. Out of 82 counties, 80% are rural. The majority of the PHDs are considered to be rural including 97% of Northwest PHD I, 99% of Northeast PHD II, and all of Delta/Hills PHD III, Tombigbee PHD IV, East Central PHD VI, and Southwest PHD VII (MSDH, 2013). Therefore, interestingly, from the MSBN database, East Central PHD VI, a rural region, was found to have the

greatest concentration of employed PMHNPs (n = 10) per 100,000 population. The most non rural district, PHD IX (Coastal Plains), had the third highest concentration of PMHNPs (n = 5.3), while West Central PHD V, which is 50% rural, had the second highest concentration of PMHNPs (n = 6.3). Even so, the state is primarily rural. This may shed more light on prior research that found Mississippi to have the highest number of rural NPs in the nation (Kaplan et al., 2012), even though the PMHNP was not specified. A national study of PMHNPs (ANCC, 2012) indicated that 10% practiced in a rural area (population less than 2,500), while nearly 40% indicated that they practiced in the city (population between 50,000 to 249,999). Due to confidentiality, analyzed data could only be reported in the aggregate of a PHD; therefore, specific county data were not reported. Other study's findings correlate with other research that uneven distribution of PMHNPs among rural and urban counties existed throughout the country (Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; Kaplan et al., 2012; Thomas et al., 2009). According to the U.S. Census Bureau (U.S. Department of Commerce, 2013), Mississippi has a population of approximately 3 million. The MSBN database indicated that there are 3.8 PMHNPs per 100,000 (n = 115) population that are actively practicing in the state. However, this figure does not include the number of PMHNPs that are practicing in more than one PHD. In comparison to prior research by SAMHSA (2012) in 2008 which reported that there were 6.9 PMHNPs per 100,000 (n = 204) population, while in 2010 Hanrahan et al., depicted a number of 5.72% per 100,000 population in the state. This conflicting data validates that the need exists even more for reliable and congruent data collection methodology across the country. Prior research indicated that data collection methods were incongruent (Hanrahan & Hartley, 2008; Ghosh et al.,

2011). Another statistically significant relationship was found between age and PHD of residence ($p$ = .012). The majority of the PMHNPs in the age categories of 23-34 and 45-54 were found to reside in the West Central PHD V which is 50% non rural, while those that fit in category 55-64 resided in the most non rural district (83%), Coastal Plains PHD IX. The latter data may serve as a predictor of an even further workforce shortage in PHD IX as the PMHNPs who fall in the age category of 55-64 began to retire. In comparison to data from the APRN survey, no statistical significance was found between age and PHD of residence ($p$ = .382).

*Minimum Demand Dataset Variables*

In order to measure the projection of workforce development, minimum demand dataset variables were collected from the hospital survey. Unfortunately, only five hospitals out of 49 hospitals that provided psychiatric services returned surveys. Due to the small sample size data could not be reported in PHDs due to the possibility of risking anonymity and confidentiality (Wanda Jones, personal communication, June 4, 2014). Consequently, due to limited availability of data, the projection for the demand of PMHNPs was not determined.

## Limitations

Several limitations were identified from this secondary data analysis. Characteristics of PMHNPs who participated in the APRN survey may be different from the general population of PMHNPs. All minimum dataset supply variables were not available from both the MSBN database and the APRN survey which may have established greater validity. Questions 3 and 4 about the primary population focus and additional national certification(s) from the APRN survey lacked clarity which impacted

responses. Private physicians and physicians' group that employ PMHNPs were not specifically included in the project. There may have been a greater response from hospitals for the hospital survey if questionnaires had been sent out electronically to nonresponders (Budden et al., 2013), or if the four steps of the Dillman approach were utilized. The step-by-step method in the Dillman approach included: (1) a questionnaire that is user friendly, (2) three contacts made by mail with either a telephone call or certified mail, (3) use of postage-paid return envelopes, and (4) and correspondence that is personal (Dillman, 1991).

All detailed hospital survey data were not made accessible to the project leader. Data were not available from CMHC or long term care facilities. The MONW hospital survey did not clearly delineate the PMHNP.

## Implications

Despite the limitations identified, the data in Mississippi relating to the number and uneven distribution of PMHNPs were consistent with the national data. Findings presented here have profound implications for policy makers, government leaders, educational institutions, and healthcare researchers for workforce development. This project explicitly denotes that a workforce shortage an uneven distribution of the PMHNP exist in the state of Mississippi. Knowledge of the number of PMHNPs and information on practice settings where PMHNPs are employed in the state of Mississippi are essential in influencing and shaping healthcare policy. The number of PMHNPs and information on demographics including age, educational preparation, and public health districts where PMHNPs reside and practice were reported in this project

The following recommendations are identified for workforce development in rural Mississippi:

(1) Improvement in the infrastructure of data collection methodology is imperative. The significance of improving tools and methodology for the projection of supply and demand is vital at the state and national levels (USDHHS, 2013b). At the state level, "effective workforce planning and policy making require better data collection and an improved information infrastructure" (IOM, 2011, p. 34, para 2) through collaboration with state licensing boards and state nursing workforce centers (IOM, 2011).

(2) The development of an accurate and consistent survey among all stakeholders that specifies the PMHNP is essential. Uniform minimum dataset supply and demand variables should be used consistently in data-collection methods by the state licensing boards and state nursing workforce centers. Collaboration among state licensing boards, state nursing workforce centers, and other stakeholders such as the Mississippi State Department of Health and the Mississippi State Department of Mental Health is essential in fostering the availability of more accurate and accessible data.

(3) An aging workforce mandates the recruitment of new practitioners to meet the needs of rural underserved areas. Strategies to cultivate recruitment, retention, and education are significant. The need exists to increase the number of applicants to PMHNP nursing programs as well as to increase financial support. Funding for education, training, recruitment, and retention of PMHNPs in rural Mississippi behavioral healthcare settings is necessary. Nursing Workforce Development Programs (Title VIII of the Public Health Service Act) provides federal funding for nursing education programs (AACN, 2013c). Workforce development programs provide funding to train more PMHNPs and increase

the supply of PMHNPs while increasing the number of graduate nurse faculty to meet some of the challenges in nursing education. Lack of faculty and clinical placement sites, an aging workforce, enrollment capacity, and need for increased student enrollments are some of the challenges faced by nursing schools.

Recent healthcare reform initiatives from the PPACA will result in more Americans being insured. Training more PMHNPs will meet the need of increased access to behavioral healthcare services. The PPAPC also provides funding to train new nurse practitioners, support the training of mental health professionals, and expand the training of the APRN in community-based settings (USDHHS, 2012). Project results indicated that most PMHNPs were employed in community based settings. Training more PMHNPs as a behavioral healthcare professional who can provide primary mental healthcare in rural Mississippi's 40 mental health HPSAs will help alleviate the workforce shortage and increase access to care for the over 1.1 million residents who are underserved (AHEC, 2013; MSBOML, 2012). The governor of the state of Mississippi has also addressed workforce development as a strategic goal in a recent initiative to make a difference in healthcare in the state; even so, the dire need and the value of the PMHNP was not expounded upon. Recruitment and retention efforts should focus on the public health districts in the state with the greatest need for PMHNPs as a behavioral healthcare professional.

(4) Elimination of the barriers of scope of practice laws to PMHNPs in order to expand access to care in underserved rural areas is a must. In addition to educational restraints, in the United States the restrictive scope of practice laws and federal regulations may impede access to care (Hess et al., 2012; Kaplan et al., 2012) and

contribute to rural mental healthcare workforce shortages (Carrier et al., 20ll; Trossman, 2013). Nurse practitioners provide quality care with improved health outcomes for their patients but are not allowed to practice to the full extent of their training. Permitting APRNs to practice to the full extent of their training is deemed necessary by the Deloitte Center for Health Solutions and the BPC (2013). In Mississippi, the facility in which an APRN is treating patients independently must be within 15 miles of the primary office of the collaborating physician with some exclusions on practice sites (MSBOML, 2014). With the shortage of mental healthcare professionals in the state, limits on distance requirements imposed on PMHNPS who wish to practice independently in areas that have the greatest need prohibits practice. PMHNPs were more likely to practice in rural areas than psychiatrists (Hanrahan & Hartley, 2008; Trossman, 2013).

In essence, the availability of significant data is imperative to serve as evidence for policy makers, employers and healthcare planners, and educators to substantiate the need for behavioral health funding for workforce development and nursing education in order to increase the supply of PMHNPs. Scope of practice, clinical practice education, policy, and retention and recruitment are all necessary in the trajectory of PMHNP workforce development (Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; Kaplan et al., 2012; Thomas et al., 2009).

## Conclusions

This project examined characteristics of PMHNPs in rural Mississippi and determined the number licensed and employed. The majority of findings were in congruence with prior research; however, interesting differences emerged. In essence, a lack of PMHNPs in a predominantly rural state exists, and with the aging of the majority,

the shortage will only increase. Data was lacking in measuring the projection of workforce development substantiating the dire need for improvement in the infrastructure of data collection methodology. Nationally, there is broad consensus concerning the need to adapt a universal method of data collection insuring accuracy, availability, and accessibility (ANCC, 2012; BPC, 2013; Budden et al., 2013; Ghosh et al., 2011; Hanrahan et al., 2010; Hanrahan & Hartley, 2008; IOM, 2011; Kaplan et al., 2012; Thomas et al., 2009). This intervention adds to prior research substantiating the need for PMHNPs in rural Mississippi and a congruent methodology.

The PMHNP is in a unique position and is capable of addressing a gap in the mental healthcare system. However, as the model of Change Theory is incorporated, buy in must be obtained from stakeholders, specifically policy makers who control the funding for education to change their attitudes and their way of thinking. This intervention adds to evidence deemed necessary to present to policy makers substantiating the need for monies for the education, training, and recruitment of the PMHNP. Even so, future projects are implicated that may include data retrieved from the CMHCs, long term care facilities, the Crisis Intervention Centers, the Veteran Administration hospitals, and private clinics while insuring that data would be comprehensive, consistent, and without duplication. The initial recommendation, definitively, is the need for accurate and consistent surveys among stakeholders. Other recommendations entail revising current surveys to insure that content is user friendly for respondents and organizational leaders and that the specification of the PMHNP is discerned. The PMHNP has a heightened and dynamic role in the future, but

collaboration and support from all stakeholders is essential in the trajectory of PMHNP workforce development in rural Mississippi.

*Plans for Dissemination*

The aim of this doctoral capstone project was to examine how improving workforce data collection projects for PMHNP workforce development, ultimately influences and shapes healthcare policy and improves access to mental healthcare services in rural mental healthcare settings in the state of Mississippi. Dissemination of the findings may project PMHNP workforce needs in the state of Mississippi. Findings can be disseminated to nursing and the community through publications in a professional nursing journal, oral and or poster presentations at the Mississippi Nurses Association (MNA) APRN and the American Psychiatric Nurses Association (APNA) conferences, health fairs, town hall meetings, and MSBOML, MSBN and MONW board meetings,. A policy brief or white paper can be written to disseminate to policy makers, especially those who serve on education and health committees and subcommittees. Presentations can be scheduled for dissemination at stakeholder meetings such as the Mississippi State Department of Health (MSDH), the Mississippi State Department of Mental Health (MSDM), the Mississippi Rural Health Association, the Nursing Organization Liaison Committee (NOLC), the Mississippi Council of Deans and Directors of Schools of Nursing (MCDDSN), and the Centers for Medicare and Medicaid Services (CMS).
In summary, as a Jonas scholar, my role in leadership has prepared me to confer with politicians from the state capitol to the White House regarding the role and significance of the PMHNP (based on evidence) ultimately impacting the future of our country's mental health.

# APPENDIX A

## LITERATURE REVIEW SUMMARY TABLE

| Author and Date of Publication | Design, Sample, and Setting | Interventions | Outcome Variables | Key findings | Level of evidence |
|---|---|---|---|---|---|
| American Nurses Credentialing Center (ANCC, 2011) | Descriptive-Quantitative Sample of 1,342 ANCC certified Family PMHNPs, ANCC July and August, 2011 | Survey questionnaire via internet following alert letter and two follow up reminders 466 respondents | Supply variables: age, years of experience, practice setting, gender, racial/ethnic background, highest degree earned, work activities | 86% of the respondents were white & nearly 88% were female, over 60% fit in the age bracket of 45to 64 years; about 75% highest degree was a Master's in nursing and nearly 7% held DNP degrees; nearly 10% practiced in a rural area & nearly 40% in urban region | Level 6 |
| Bipartisan Policy Center (BPC, 2013) | Quantitative Exploratory-Descriptive. 12 health care service delivery professions, including registered nurses (APRNs inclusive) in U.S. | Explored the current and future supply of 12 health care professions nationally. Examined primary databases , national employment estimates, and future projections | Supply variables, i.e., income, scope-of practice laws, faculty shortages, training time , aging, gender, race/ethnicity, work hours, geographic location, economic conditions, job satisfaction<br><br>Demand variables, i.e., chronic illnesses, aging population, PPACA (health | Healthcare Workforce supply data fragmented, limited, non-comparable, and inconsistent; lack of timely available information impacts supply trend projections; supply and demand variables impact workforce projection; | Level 6 |

| | | | | | |
|---|---|---|---|---|---|
| | | | care reform and expansion), greater demand for primary care services, and education (licensing training, certification); Health workforce models | Planning models are limited; health workforce models used to collect data, 2010 -2020 projected increase for RN (including APRNs, but not specified) over 7000,000 new jobs 26% projected growth rate | |
| Budden, et. al., 2013 | Descriptive Quantitative. Random sample of 42,294 licensed RNs (including APRNs) in the US and territories (stratified by state), mostly selected from the National Council of State Boards of Nursing NCSBN from January 2013 to March 2013 | Survey questionnaire distributed to 109,853 RNs; data retrieved from Nursys, the (NCSBN) licensure database; a collection of nursing workforce data | Variables: gender, age, race/ethnicity, number of years since graduated, number of years since initial licensure, employment settings, employment by job title, highest level of education, employment specialty | Demographic data analyzed utilizing descriptive statistics, coding, categorizing, bivariate analysis, logistic regression; 7% of the respondents were APRNs (NPs [30%], CNSs [12%], and CRNAs [4%]) ; the majority of NPs were aged 55-59 (18%); the MSN was highest degree held by majority of NPs (79%); 7% of NPs specialized in psychiatric/ | Level 6 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | mental health nursing, 2012-43,688 active RN licensees in MS; | |
| Ghosh, et al., 2011 | Descriptive Quantitative/ Qualitative. PMHNPs in the U.S. certified during 2007 (n= 10,452) by the American Nurses Credentialing Center | A geographical analysis of the distribution of PMHNP in U.S. utilizing (Geographic Information Systems (GIS) techniques. In a two step process (1) using U.S. Census zip code data, and (2) cluster analysis (hot spots) indicating PMHNP availability and (cold spots) low availability | Pattern of distribution (number) of PMHNPs in urban or rural (geographic location) areas (cluster type – cold or hot) ;population weighted PMHNPs | Significantly higher number of rural counties (n=150) depicted cold spots (low cluster types) indicating scarcity of PMHNPs, while counties depicting very high cluster types (hot spots) indicate a greater number of counties belonging to a large central urban group (n=35) and a large fringe urban group (n=80) indicating a greater number of PMHNPs. Greater concentration of PMHNPs in northeastern U.S., least in southern states. | Level 6 |
| Hanrahan & Hartley, 2008 | Descriptive Quantitative/ Qualitative. All certified PMHNPs in | Secondary analysis of national certification data provided | Workforce characteristics (employment setting, work hours, and | Workforce shortage; PMHNP more likely to reside in rural areas | Level 6 |

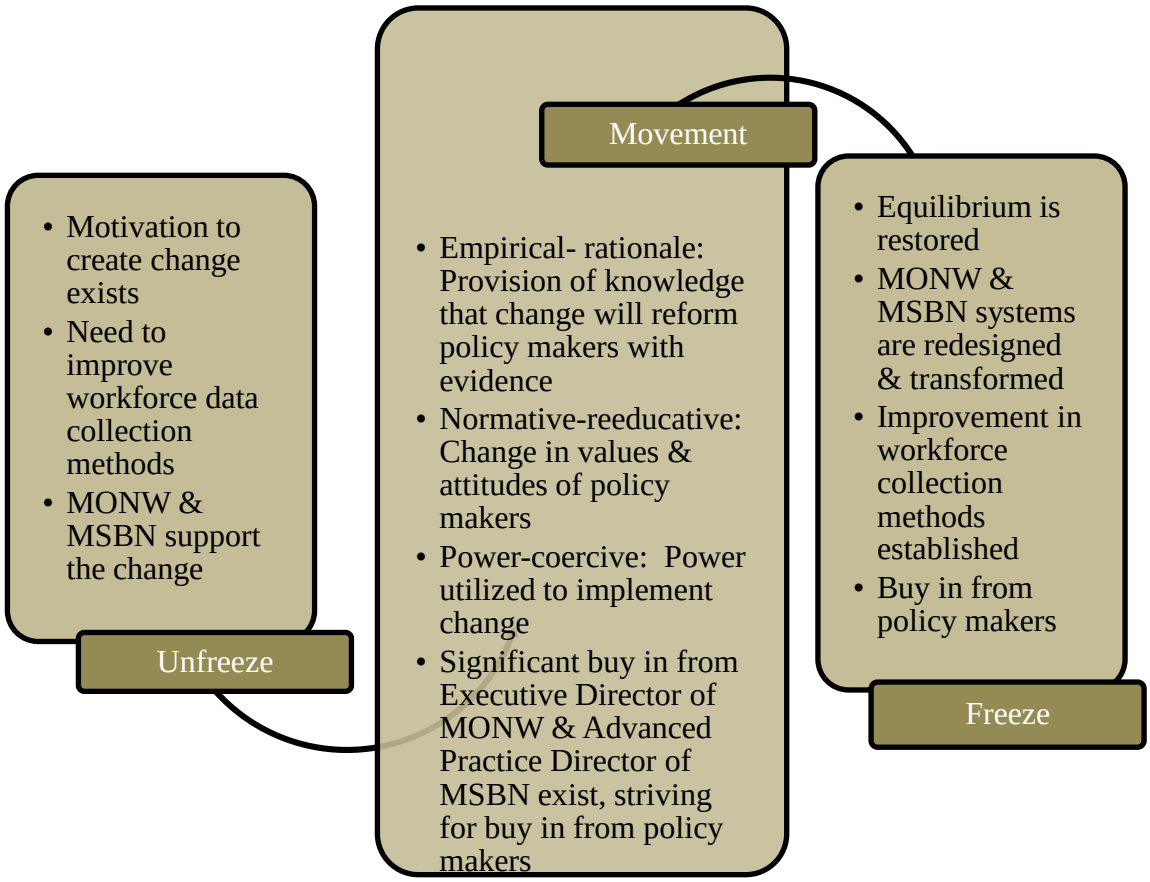
| | | | | | |
|---|---|---|---|---|---|
| | the U.S.in 2003 (n= 8,751) | by the ANCC | number of places employed), age, workforce, rural distribution of PMHNPs | than psychiatrists; The lowest density of PMHNPs in the southern states; population analyzed per 100,000; mean age 52; PMHNPs more apt to practice in rural area than psychiatrist, 13% and 7%, respectively | |
| Hanrahan, et al., 2010<br><br>Kaplan, 2012 | Descriptive Qualitative/ Quantitative PMHNPs in the U.S n=15,973 (NSSRN), n= 6,184(APNA & ISPN)<br><br>Descriptive Qualitative/ Quantitative. APRNs (NPs, CRNAs, CNMs, and CNSs) who | Secondary analysis of multiple data sources; data collected from surveys: National Sample Survey of Registered Nurses (NSSRN), Association Psychiatric Nurses Association ( APNA), International Society of Psychiatric – Mental Health Nurses (ISPN)<br><br>Survey of CMMS National Provider Identifier (NPI) data analyzed distribution among U.S. urban and rural | Variables: job satisfaction, practice setting, educational, workforce characteristics , employment patterns, geographic distribution<br><br>Characteristics (gender and supply), and distribution of APRNs per | Uneven distribution between rural & urban areas; 83% reside in urban 15.9% in rural; lowest density in Nevada (0.64%) a while highest density in Maine (20.55%) per 100,000 population. 5.72% in MS; concentration direct correlation to prevalence of APRN education & a regulatory environment<br><br>Lack reliable data systems. | Level 6<br><br>Level 6 |

| | | | | | |
|---|---|---|---|---|---|
| | possessed active licenses practicing in the U.S. as of March, 2010 (n= 152,608) | areas | population | Supply measured by # per 10,000 state population; Out of 106,113 APRNs 89,947 (84.8%) practiced in urban while 16,166 (15.2%) practiced in rural areas with greater autonomy; in MS out of 1,5081 APRNs , 696 practice in urban areas, while 812 practice in rural. | |

| | | | | | |
|---|---|---|---|---|---|
| Thomas, et al., 2009 | Descriptive Quantitative/ Qualitative. Behavioral Health Professionals (BHP) at the county (n= 3,140) level in the U.S. in 2006. BHPs included psychiatrists (prescribers); psychologists, PMHNPs, social workers, counselors, marriage and family therapists(non prescribers) | Examined shortages of BHPs in U.S. utilizing the county as method of analysis. Estimation of the prevalence of serious behavioral health illness and aggregated with estimates of provider time needed by persons with and without a serious behavioral health illness. Data from state licensure boards, professional associations, and certification boards were utilized for county-level supply estimates. | The percentage of need for behavioral health visits. Need: provider full time equivalents (FTE)[calculated from outpatient visit minutes] needed in each county. Supply: provider FTE (calculated from provider minutes) available in each county. Travel time for services taken into account for both supply and need. Each counties unmet need: the difference between the need and supply. | Severe shortage exists in US of behavioral health prescribers and nonprescribers in over 77% of each county in U.S. Unmet need for nonprescribers about one in five counties (18%); unmet need for prescribers in almost every county (96%); the south and rural counties had greatest deficits. Data workforce collection methods improvement Essential | Level 6 |

APPENDIX B

THE CHANGE THEORY MODEL




Change Theory Model, Lewin, 1951

# APPENDIX C

## DOCTOR OF NURSING PRACTICE ESSENTIALS

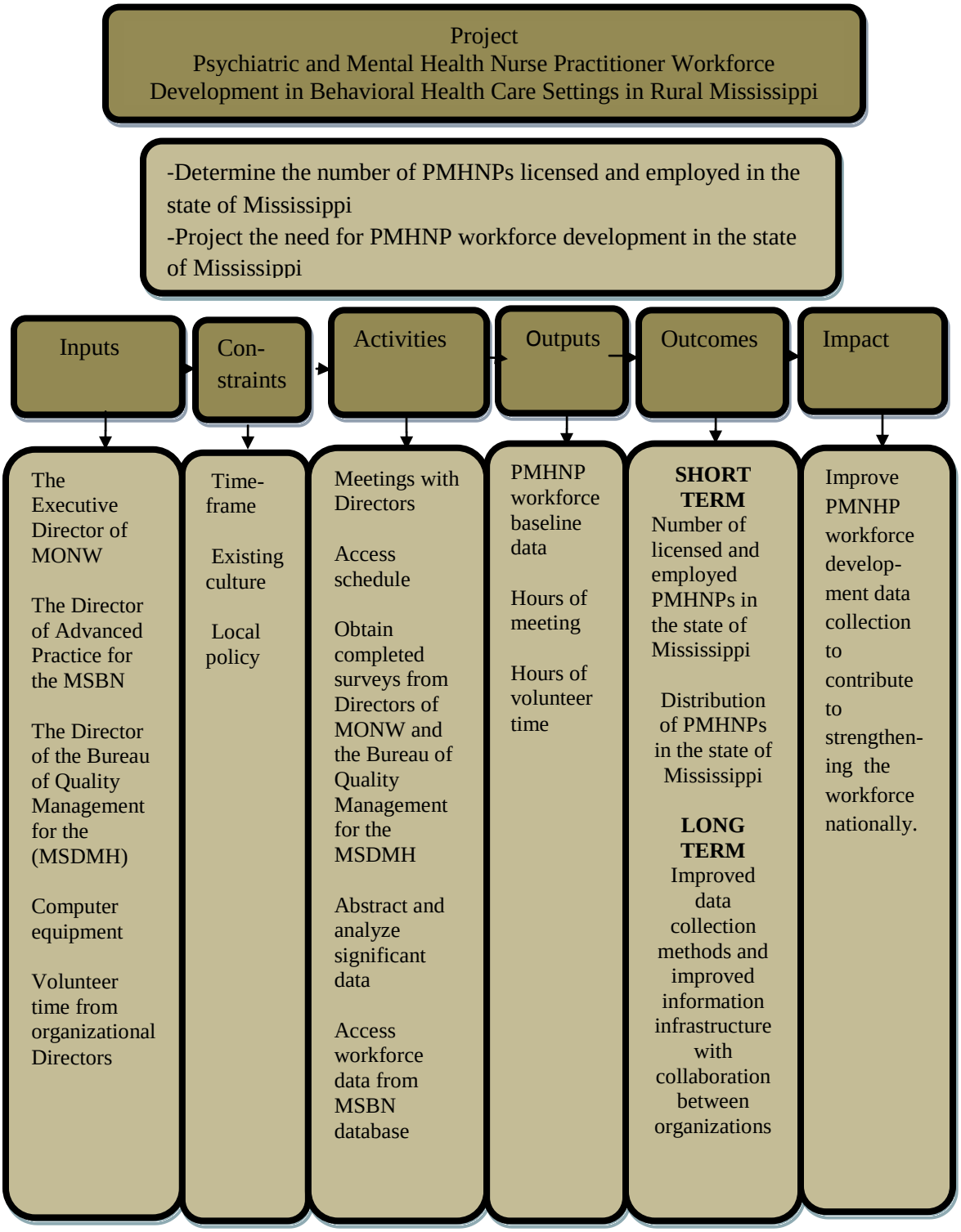
| | | |
|---|---|---|
| I. | Scientific Underpinnings for Practice | Integration of Change Theory<br>Evaluating approach to workforce data collection methods based on Change Theory at the MSBN and the MONW. The concepts of unfreezing, movement, and refreezing were addressed. |
| II. | Organizational & Systems Leadership for Quality Improvement & Systems Thinking | Evaluated current organizational systems at the MSBN and the MONW.<br>Collaborated with leaders of both organizations to evaluate the impact of PMHNP workforce projection for the safety of the behavioral health population. |
| III. | Clinical Leadership & Analytical Methods for Evidence-Based Practice | Evaluated current workforce data collection methods within the MSBN and the MONW and compared to other data collection methods on the national level.<br>Disseminated findings from research to improve data collection methods in order to ultimately improve outcomes |
| IV. | Information Systems/Technology & Patient Care Technology for the Improvement & Transformation of Health Care | Critically appraised literature on PMHNPs and concepts of workforce projection and data collection methodology.<br>Analyzed data extracted from MSBN information systems and MSBN & MONW databases formulating an improvement plan. |
| V. | Health Care Policy for Advocacy in Health Care | Critically analyzed the PPACA (health policy) and impact on the nursing workforce and other health care professionals, stakeholders, and consumers.<br>Advocate for behavioral health funding politically at state and national levels. |
| VI. | Interpersonal Collaboration for Improving Patient and Population Health Outcomes | Collaborated with stakeholders/organizations (MSBN, MONW, M DMH) to improve workforce data collection methods to increase access to mental health care thereby improving the mental health population health outcomes |
| VII. | Clinical Prevention & | Analyzed current workforce data at MSBN |

| | | |
|---|---|---|
| | Population Health for Improving the Nation's Health | and the MONW; addressing a gap in behavioral healthcare in relation to the shortage of PMHNPs (workforce projection) impacting the mental health population's access to care. |
| VIII. | Advance Nursing Practice | Developed relationship and partnered with MSBN and MONW stakeholders. Utilizing conceptual and analytical skills to evaluate the links among the MSBN, MNA, and the MONW in PMHNP workforce development, as well as, corresponding policy issues. |
| | | |

Note: (American Association of Colleges of Nursing, 2006).

# APPENDIX D

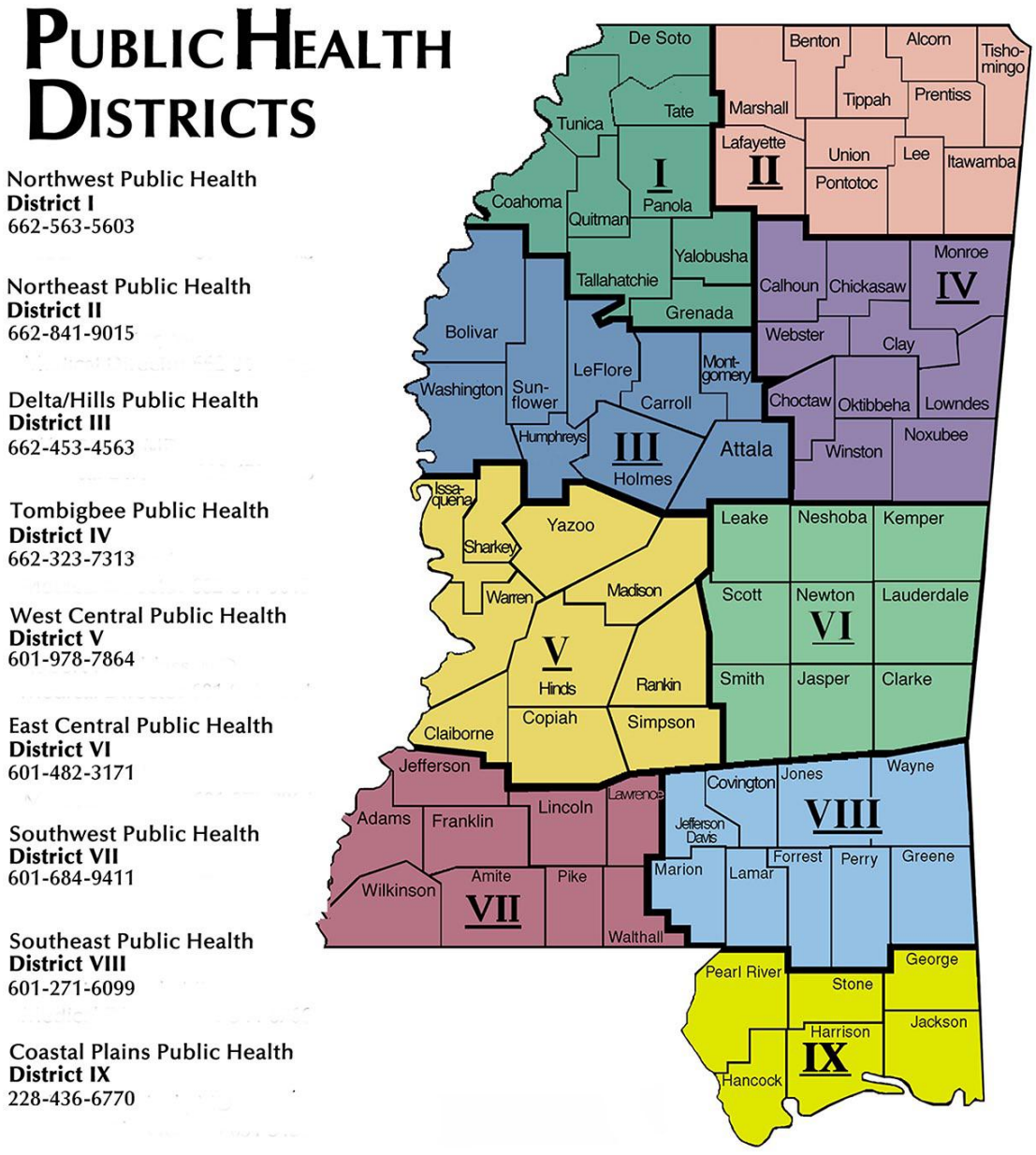
## LOGIC MODEL FOR EVALUATION PLAN




(Logical Model format adopted from Zaccagnini, M., 2007)

APPENDIX E

PUBLIC HEALTH DISTRICTS MAP




Mississippi State Department of Health, 2013b

APPENDIX F

MISSISSIPPI OFFICE OF NURSING WORKFORCE (MONW), MISSISSIPPI NURSES ASSOCIATION (MNA) & THE MISSISSIPPI STATE BOARD OF NURSING (MSBN) ADVANCED PRACTICE REGISTERED NURSE (APRN) WORKFORCE SURVEY 2013

Advanced Practice Registered Nurse Survey Advanced Practice Registered Nurse Survey

## Advanced Practice Registered Nurse Survey

This survey is part of an effort to garner as much information as possible about the Advanced Practice Registered Nurses (APRNs) in Mississippi in order to provide accurate reporting to the public, policymakers, and other interested parties. The survey is being conducted by the Mississippi Office of Nursing Workforce. The information you share will NOT be linked back to you or singled out; rather, the aggregate information will be used to describe the current health care picture for APRNs in Mississippi.

*
1. Do you consent to participate in this survey?

Yes
No

## To begin, we would like to know some basic information about you and your practice as an APRN.

**2. What is your APRN role designation?**

Certified Registered Nurse Anesthetist (CRNA)
Certified Nurse Midwife (CNM)
Certified Clinical Nurse Specialist (CCNS)
Certified Nurse Practitioner (CNP)

**3. If youi' role is a CNP or CCNS, what is your primary population focus?**

Family/ across the lifespan
Adult/gerontology
Pediatric
Neonatal
Women's health/gender related
Psychiatric

**4. What additional national certification(s) do you hold?**

**5. In which county do you reside?**

**6. In which county (counties) do you practice? (check all that apply)**

Adams Itawamba Pike
Alcorn Jackson Pontotoc
Amite Jasper Prentiss
Attala Jefferson Quitman
Benton Jefferson Davis Rankin
Bolivar Jones Scott
Calhoun Kemper Sharkey
Carroll Lafayette Simpson

Chickasaw Lamar Smith
Choctaw Lauderdale Stone
Claiborne Lawrence Sunflower
Clarke Leake Tallahatchie
Clay Lee Tate
Coahoma Leflore Tippah
Copiah Lincoln Tishomingo
Covington Lowndes Tunica
DeSoto Madison Union
Forrest Marion Walthall
Franklin Marshall Warren
George Monroe Washington
Greene Montgomery Wayne
Grenada Neshoba Webster
Hancock Newton Wilkinson
Harrison Noxubee Winston
Hinds Oktibbeha Yalobusha
Holmes Panola Yazoo
Humphreys Pearl River
Issaquena Perry

**7. How many years of practice as a certified APRN have you had?**

**8. Do you own your own clinic(s)?**

Yes
No

**9. How would you best describe your practice?**

Physician is on site the majority of the time
Physician is only on site for Quality Assurance

**10. How is your practice funded? (check all that apply)**

Private funds
Federally funded
State funded practice

**11. What federal funds do you accept? (check all that apply)**

Medicare
Medicaid
CHIPS
TRICARE

## Next, we would like to know more about the patients you serve.

**12. What percentage of the total number of patients you see in a week are Medicare?**

0
1-25%
26-50%
51-75%
76% or greater

**13. What percentage of the total number of patients that you see in a week are Medicaid?**

0
1-25%
26-50%
51-75%
76% or greater

**14. What percentage of the total number of patients that you see in a week are CHIPS?**

0
1-25%
26-50%
51-75%
76% or greater

**15. What percentage of the total number of patients you see in a week are TRICARE?**

0
1-25%
26-50%
51-75%
76% or greater

**16. What percentage of the total number of patients you see in a week have NO insurance and are self pay?**

0
1-25%
26-50%
51-75%
76% or greater

**17. Approximately how many patients do you see in a day?**

## Now we would like to ask you some questions about your employment status and work life.

**18. What is your employment status?**

Full time
Part time
Per Diem
Unemployed

**19. On average, how many days a week do you work?**

**20. On average, how many hours a day do you work?**

**21. Do you take call?**

Yes
No

**22. Do you have hospital privileges?**

Yes
No

**23. Are you employed by a hospital?**

Yes
No

**24. On average, how many prescriptions do you write a week?**

**25. What percent of the prescriptions you write are for controlled substances?**

1-25%
26-50%
51-75%
76% or greater

**26. Do you currently have a DEA number?**

Yes
No

## Next, we would like to ask you about your collaborating physicians.

**27. How many collaborating physicians do you have on your protocol?**

**28. Do you pay your collaborating physician(s)?**

Yes
No

**29. If YES, how much do you pay per physician, per month?**

**30. How far in miles (one way) are the physician(s) with whom you collaborate located from your primary practice site?**

**31. On average, how many times per week do you physically meet with your collaborating physician(s)?**

Less than 1 time per week
1-2 times per week
3-4 times per week
5 or more times per week

**32. On average, how many times per week do you speak to your collaborating physician(s) by phone, text or email?**

Less than 1 time per week
1-2 times per week
3-4 times per week
5 or more times per week

**33. Have you ever faced problems related to obtaining a new collaborating physician?**

Yes
No

**34. If yes, what was the nature of the problem?**

## Now we would like to hear about any challenges or additional information you would like to share.

**35. Please describe any current problems or barriers related to your practice as an APRN.**

**36. Is there any additional information you would like us to know related to your practice as an APRN?**

## To end, we would like to ask some questions about your background.

**37. What is your highest educational level?**

Baccalaureate degree: Nursing
Baccalaureate degree: Non-nursing
Master's degree: Nursing
Master's degree: Non-nursing
Doctoral degree: Nursing Practice (DNP)
Doctoral degree: Other Nursing
Doctoral degree: Non-nursing

**38. Are you currently enrolled in school?**

Yes
No

**39. If YES, please describe the program, including its location.**

**40. If NO, do you intend to return to school?**

Yes, within the next 5 years
Yes, but in more than 5 years
No

**41. How old are you?**

18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 and older

**42. What is your gender?**

Male
Female
Other

**43. What is your race/ethnicity? (check all that apply)**

American Indian or Alaska Native
Asian
Black/African American
Native Hawaiian or Pacific Islander
White
Other

**44. Are you Hispanic/Latino?**

Yes
No

## Advanced Practice Registered Nurse Survey
## Thank you!

Thank you for your help completing this survey! If you would like to provide any more information on any of the questions asked in this survey, please contact MNA at 601-898-0670.

# APPENDIX G

## MONW ANNUAL SURVEY OF HOSPITALS-FISCAL YEAR (FY) 2013

Mississippi State Department of Health
Division of Licensure and Certification
**ANNUAL SURVEY OF HOSPITALS - FY 2013**

The Office of Nursing Workforce, in cooperation with the Mississippi State Department of Health, requests your assistance in providing additional information for nursing personnel staff. Responses will facilitate strategic planning to assure an appropriately prepared nursing workforce.

**1. CURRENT and INTENDED Full-Time Equivalent (FTEs) Nursing Personnel***

For each of the following nursing personnel categories, indicate

1) Current number of vacant full-time equivalent positions (FTEs)
2) Total number of current budgeted FTEs
3) Number of FTEs you intend to have in the coming year
4) Number of FTEs you intend to have two years from now

Leave any categories that have no current or intended FTEs blank. An FTE is a budgeted position of 35 hours or more per week. Part-time employees should be included in the count (half-time position =.5 FTE, quarter time position =.25 FTE).

***All nursing personnel should be included, even if personnel do not fall under nursing services.**

| **Nursing Personnel Category (See monw.org for definitions)** | **Number of vacant FTE positions** | **Total # of current budgeted FTEs** | **Total # of FTES intend to have in 2014** | **Total # of FTEs intend to have in 2015** |
|---|---|---|---|---|
| A. Administration | | | | |
| a) Chief Nurse Executive | | | | |
| b) Chief Nursing Officer | | | | |
| c) Directors and Nursing Supervisors | | | | |
| B) Registered Nurses | | | | |
| a) Staff nurses (all areas) | | | | |
| b) Case managers | | | | |
| c) Quality Assurance/ Performance Improvement | | | | |
| d) Infection Control | | | | |
| e) In-service Educators | | | | |
| f) Patient Educators | | | | |
| g) First Assistants | | | | |

| | | | | |
|---|---|---|---|---|
| h) Other RNs (List) _____ | | | | |
| **TOTAL ALL RN CATEGORIES** | | | | |
| C. Licensed Practical Nurses | | | | |
| a) LPNs | | | | |
| D. Ancillary Personnel | | | | |
| a) CNAs, Nurse Techs, Orderlies | | | | |
| E. Advanced Practice Registered Nurses | | | | |
| a) Certified Nurse Practitioner | | | | |
| b) Clinical Nurse Specialist | | | | |
| c) Certified Registered Nurse Anesthetist | | | | |
| d) Certified Nurse Midwife | | | | |

**2. RN Turnover**

a) Total number of RN terminations for any reason in the past 12 months _____

b) Average number of employed RN FTEs for the past 12 months (*This number should be similar to the total number of RN positions listed on the front page)* _____

**3. Recruitment of Nursing Personnel**

a) During the current reporting period, have you had difficulty recruiting nursing personnel?

Yes ☐ No ☐

b) If **YES**, please list the categories of nursing personnel you have had trouble recruiting and/or the service area where recruitment has been difficult (e.g., critical care)

| Category of Nursing Personnel | Service Area |
|---|---|
| | |

**4. Contract/Agency/Traveling Personnel**

a) Does your organization use contract, agency, or travelling personnel? Yes ☐ No ☐

b) If **YES,** what percentage of nursing services are covered by temporary, external, or travelling personnel on a typical day? _____%

**5. Part-time Personnel**

a) Does your organization use part-time personnel, including internal PRN pools? Yes ☐ No ☐

b) If **YES,** what percentage of nursing services are covered by part-time personnel? _____%

**6. Foreign Trained RNs**

a) Does your organization use foreign trained registered nurses? Yes ☐ No ☐

b) If **YES**, what percentage of nursing services is covered with foreign trained nurses? _____%

**7. Highest level of education for RN employees**

In the table below please indicate the number of **current full and part-time employees** at your facility whose highest level of education falls within the following categories. Also indicate the number of RNs you intend to employ at each educational level in the next two years.

| **Highest level of education of RN employees** | **Number of CURRENTLY employed RNs (2013)** | **Number you INTEND to employ next year (2014)** | **Number you INTEND to employ in two years (2015)** |
|---|---|---|---|
| Diploma | | | |
| Associate Degree | | | |
| Baccalaureate Degree | | | |
| Master Degree | | | |
| Doctoral Degree | | | |
| **Total** | | | |

**8. Continuing Education (CE)**

List the two most urgent CE needs of your current nursing workforce

1) _____

2)_____

**9. Contact Information**

Please provide contact information in case there is a need for clarification of response. Thank you for your assistance.

Name: _____ Title:

_____

Phone number & ext.: _____ Email:

_____

Name of Institution:

_____

County: _____

**ONW USE ONLY:** PHD_____ WIN District

_____

# APPENDIX H

## MONW 2013 ANNUAL SURVEY FOR LONG TERM CARE FACILITIES

Mississippi State Department of Health
Division of Licensure and Certification
Division of Aging and Adult Services

**2013 ANNUAL SURVEY**

The Office of Nursing Workforce, in cooperation with the Mississippi State Department of Health, requests your assistance in providing additional information for the following categories: Administration; RNs; LPNs; and Aides, Orderlies, and Attendants. Responses will facilitate strategic planning to assure an appropriately prepared nursing workforce.

**1. CURRENT and INTENDED Full-Time Equivalent Positions (FTEs) for Nursing Personnel:**

For each of the following nursing personnel categories, indicate: 1)**current** number of **vacant** full-time equivalent positions (FTEs); 2) total number of **current budgeted** FTEs; 3) number of FTEs you **intend** to have **in the coming year** and 4) number **intended *2* years** from now. Leave blank any categories which have no CURRENT and/or INTENDED FTEs. Indicate part-time positions as follows: half-time position =.5 FTE; quarter time position =.25 FTE. An FTE is a budgeted position of 35 hours or more per week.

* **Please include all nursing personnel even if personnel do not fall under nursing.**

| Nursing Personnel Catgory **(Go to www.monw.org for definitions)** | Number of vacant FTE positions | Total # of current budgeted FTEs | Total # of FTEs intend to have in **2014** | Total # of FTEs intend to have in **2015** |
|---|---|---|---|---|
| A. Administration Chief Nurse Executive (CNE), Chief Nursing Officer (CNO),Directors & Nursing Supervisors | | | | |
| B. Nursing Services **Registered Nurses (RNs)ONLY** | | | | |
| (a)Staff nurses(all areas) | | | | |
| (b)Quality Assurance/ Performance Improvement | | | | |
| (c)Inservice Educators | | | | |
| (d)Nurse Practitioners | | | | |
| (e)MDS Coordinator | | | | |
| (f)Care Plan Coordinator | | | | |
| (g)Medicare Nurse (RN) | | | | |
| (h)other RNs (List) | | | | |

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**TOTAL ALL RN CATEGORIES**
C. Licensed Practical Nurses
D. Ancillary Personnel
(CNAs, Nurse Techs, Orderlies)
E. Other Nursing Service Personnel

**2. Recruitment of Nursing Personnel**

During the current reporting period, have you had difficulty recruiting nursing personnel? Yes ☐ No ☐

If **Yes**, please list the categories of nursing personnel you have had trouble recruiting AND/OR the service area where recruitment has been difficult (e.g., critical care):

**Category of Nursing Personnel Service Area**

a._____a._____

b._____b._____

**3. Temporary Personnel**

(a) Does your organization use temporary, external agency or traveling personnel?

Yes ☐ No ☐

(b) If **YES**, what percentage of nursing services is covered by temporary, external agency or traveling personnel on a typical day? _____%

**4. Part-time Personnel**

(a) Does your organization use part-time personnel including internal PRN pools?

Yes ☐ No ☐

(b) If **YES**, what percentage of nursing services is covered by part-time personnel? _____%

**5. Foreign Trained RNs**

(a) Does your organization use foreign trained registered nurses?

Yes ☐ No ☐

(b) If **YES**, what percentage of nursing services is covered with foreign trained RNs?_____%

**6. RN Turnover**

(a) Total # of RN terminations for any reason for the most recent 12 months_____

(b) Average # of employed RN FTEs for the most recent 12 months _____

**7. LPN Turnover**

(a) Total # of LPN terminations for any reason for the most recent 12 months_____

(b) Average # of employed LPN FTEs for the most recent 12 months _____

**8. Highest Educational Level for RN Employees**

Indicate the number of CURRENT full and part-time RN employee, regardless of nursing personnel category, whose highest educational level is: Diploma, Associate Degree, Baccalaureate Degree, Masters Degree or Doctoral Degree.

| Highest Educational Level of RN Employees | **# of CURRENTLY employed RNs (2013)** | **# you INTEND to employ next year (2014)** | **# you INTEND to employ in 2 years (2015)** |
|---|---|---|---|
| Diploma | | | |
| Associate Degree | | | |
| Baccalaureate Degree | | | |
| Masters Degree | | | |
| Doctoral Degree | | | |
| **TOTAL** | | | |

**9. Continuing Education**

List the two most urgent continuing education needs of your current nursing workforce:

(1)_____(2)_____

_____

**10. CONTACT INFORMATION:** Please provide contact information in case there is a need for

# APPENDIX I

## LETTER TO FACILITIES FROM MISSISSIPPI OFFICE OF NURSING WORKFORCE (MONW)

October 2013

Dear Chief Executive Officer and/or Chief Nursing Executive:

The Office of Nursing Workforce (ONW) is conducting the 16th Annual Survey of Hospitals in conjunction with the MS State Department of Health's facility licensure and certification. The goal of this survey is to provide employers, educators and health care planners with accurate data regarding the current and future needs of nursing services throughout Mississippi. Results are typically used to inform the policy making and planning processes at local, regional and state levels.

With current state and national attention focused on recruitment and retention of nurses, it is critical that all Mississippi hospitals provide the requested data to ensure accurate workforce forecasting. Last year, MONW received a survey from approximately 90% of all hospitals. Your participation is vital to insure accurate and useful information.

All data are reported in aggregate form and while some data are grouped by the nine State Public Health Districts, no agency is identified by name or specific location. The data will be available on ONW's web site www.monw.org.

**Please forward this letter and attached survey to the appropriate person in Nursing Services and/or Human Resources to complete the form and return it by December 2, 2013 with your licensure and certification application to**:

Mississippi State Department of Health

Division of Health Facilities Licensure and Certification

P.O. Box 1700

Jackson, Mississippi 39125-1700

Thank you for your participation. If you have questions or need additional information, you may contact me at the Office of Nursing Workforce at 601-368-3321 or e-mail at info@monw.org.

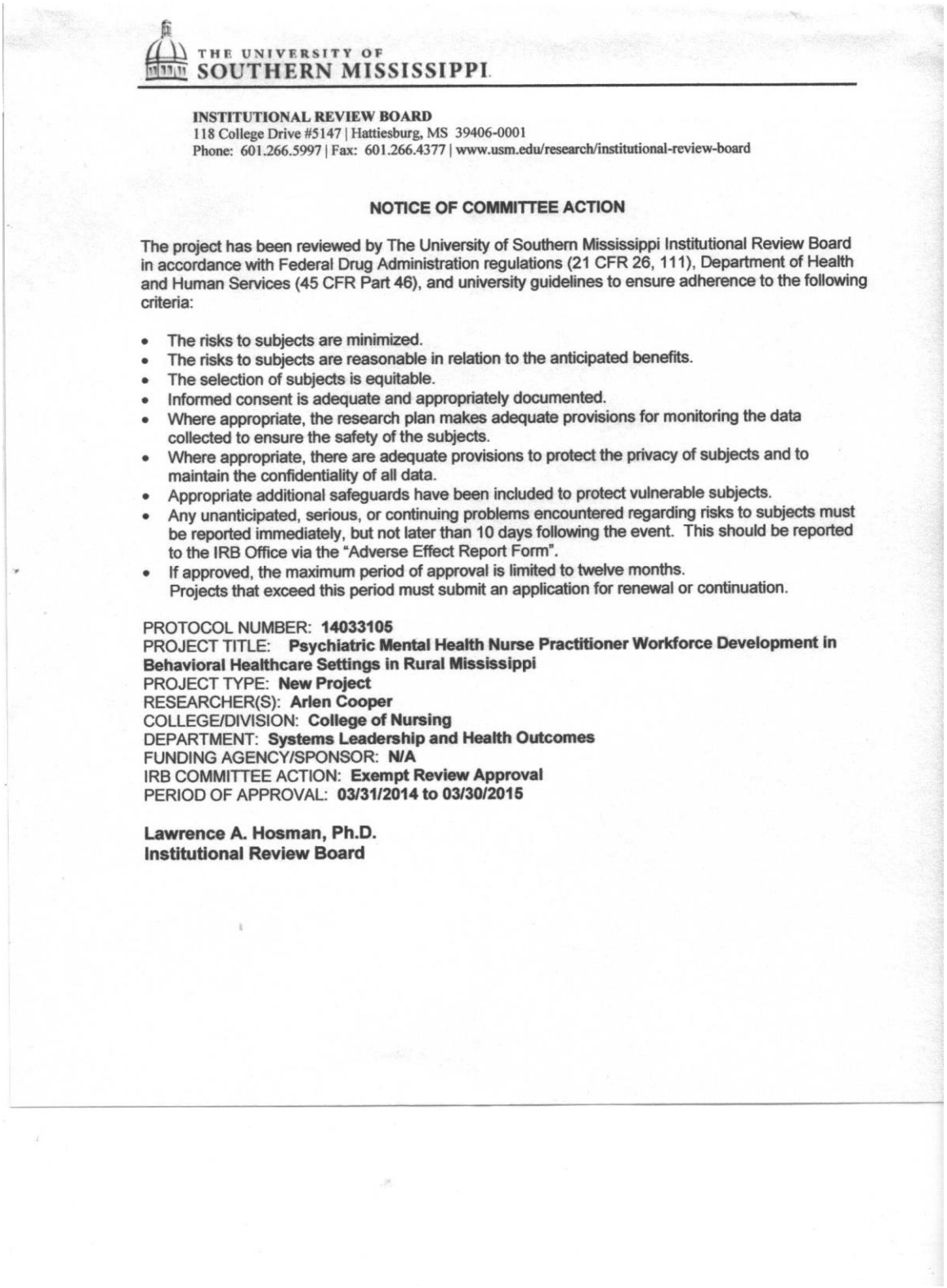
Sincerely,

Wanda M. Jones, MS, RN

Executive Director

# APPENDIX J

## THE UNIVERSITY OF SOUTHERN MISSISSIPPI IRB APPROVAL LETTER



THE UNIVERSITY OF
SOUTHERN MISSISSIPPI

**INSTITUTIONAL REVIEW BOARD**
118 College Drive #5147 | Hattiesburg, MS 39406-0001
Phone: 601.266.5997 | Fax: 601.266.4377 | www.usm.edu/research/institutional-review-board

**NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months.
  Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **14033105**
PROJECT TITLE: **Psychiatric Mental Health Nurse Practitioner Workforce Development in Behavioral Healthcare Settings in Rural Mississippi**
PROJECT TYPE: **New Project**
RESEARCHER(S): **Arlen Cooper**
COLLEGE/DIVISION: **College of Nursing**
DEPARTMENT: **Systems Leadership and Health Outcomes**
FUNDING AGENCY/SPONSOR: **N/A**
IRB COMMITTEE ACTION: **Exempt Review Approval**
PERIOD OF APPROVAL: **03/31/2014 to 03/30/2015**

**Lawrence A. Hosman, Ph.D.**
**Institutional Review Board**

# APPENDIX K

## MISSISSIPPI OFFICE OF NURSING WORKFORCE (MONW) LETTER OF SUPPORT

February 20, 2014

Arlen Cooper, MSN, PMHNP-BC
DNP Student
University of Southern Mississippi
Hattiesburg, MS

Dear Ms. Cooper:

Please accept my commitment, and that of the Mississippi Office of Nursing Workforce (MONW), to your proposed research project: "Psychiatric Mental Health Nurse Practitioner Workforce Development in Rural Behavioral Health Care Settings in the State of Mississippi". This project aims to expand the infrastructure for the workforce data collection and analysis of psychiatric mental health practitioners by collaborating with current nursing workforce data collection entities, comparing to the nationally recommended minimum dataset, and identifying gaps in data elements and employer work groups. This research approach exemplifies the overarching mission of MONW, to "assure adequate numbers of appropriately trained nurses to meet the healthcare needs of Mississippians". This project has the potential to contribute to not only to the state PMHNP workforce database, but also to the ongoing development of the national minimum dataset, developed by the National Forum of State Nursing Workforce Centers.

In addition to the important aims of your project, you are building a multi-organizational research collaborative, involving faculty, graduate students, and professional researchers from state agencies, professional associations, philanthropic entities, and the National Forum of State Nursing Workforce Centers. The commitments you have already received from the various stakeholders will allow you to develop an impressive, evidence based document that will inform public policy in meeting the ever increasing mental health needs of our populations.

The Mississippi Office of Nursing Workforce is dedicated to promoting the recruitment, training and development of sufficient numbers of nurses, and specifically with this project, psychiatric mental health nurse practitioners, to satisfactorily meet the mental health needs of Mississippians. We see strong potential to replicate this model with other nurse practitioner specialty areas to accurately and comprehensively portray Mississippi's advanced practice nursing population.

We applaud your desire and willingness to pursue this lofty endeavor and hope that your proposal receives a favorable review. We look forward to working with you on this foundational project.

Sincerely,

Wanda M. Jones

Ms. Wanda M. Jones, PhD(c), MSN, RN
Executive Director
Mississippi Office of Nursing Workforce

# APPENDIX L

## MISSISSIPPI STATE BOARD OF NURSING (MSBN) LETTER OF SUPPORT

MISSISSIPPI **BOARD OF NURSING**
713 Pear Orchard Road
Plaza II, Suite 300
Ridgeland, MS 39157
Telephone: 601.957.6300
Facsimile: 601.957.6301
www.msbn.state.ms.gov

March 14, 2014

Ms. Arlen Cooper
Doctor of Nursing Practice (DNP) Program
The University of Southern Mississippi

Dear Ms. Cooper:

Please accept my commitment and that of the Mississippi Board of Nursing (MSBN), to your proposed capstone project: "Psychiatric Mental Health Nurse Practitioner Workforce Development in Behavioral Healthcare Settings in Rural Mississippi." This project aims to provide an understanding of the workforce of psychiatric and mental health nurse practitioners (PMHNPs). Moreover the project will help set new priorities for programs designed to promote retention and recruitment of PMHNPs in rural and underserved areas. This research approach exemplifies the overarching mission of the MSBN to protect the public by ensuring that an adequate nursing workforce is available to meet the mental health needs of populations in our state. Furthermore, findings from this project will assist multiple agencies to form partnerships for enhancing PMHNP's workforce.

In addition to the important aims of your capstone project, you are providing essential information for policy development in nursing workforce arena. The commitments you have already received from local organizations will allow you to set a model for enhancing mental health services in rural and underserved areas. This information and model project can be replicated in other states to promote a better mental health workforce for all populations in need.

The MSBN is dedicated to protecting the public through the regulation of the practice of nursing within the state. Appropriate data to identify PMHNP workforce in rural and underserved areas and a project to enhance the workforce is essential to the meeting the mission of the board. MSBN is committed to your capstone project and we see strong potential to build the knowledge and foster workforce for mental health nurse practitioners. We hope that your capstone project receives a favorable review and look forward to working with you on this foundational project.

Sincerely,

Lynn Langley
Dr. Lynn Langley
Interim Executive Director
Mississippi Board of Nursing

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